

The African Organisation for Standardisation

EDICT OF GOVERNMENT

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them.

ARS 751 (2012) (English): Organic
products standard



BLANK PAGE



Organic products standard



Table of contents

1	Scope	1
2	Normative references	1
3	Description and definitions	2
3.1	Description	2
3.2	Definitions	2
4	General requirements for organic production	6
4.1	Organic plan	6
4.2	Documentation, transparency and identification	7
4.3	Contamination	7
4.4	Genetically Modified Organisms (GMOs)	7
4.5	Social justice	8
4.6	Adherence to relevant legislation	8
4.7	Knowledge about organic production	8
5	Rules of production and preparation	8
6	Requirements and criteria for inclusion of substances in Annex B	9
6.1	Substance list review procedures	9
6.2	Permitted substance criteria	9
6.3	Necessity of a substance	10
6.4	Origin and mode of production of a substance	11
6.5	Impact of a substance	12
6.6	Origin and usage annotation	13
6.7	Exceptions	13
7	Inspection and certification systems	13
8	Imports	14
9	Crop production	15
9.1	Conversion period and requirements	15
9.2	Farm conversion and parallel production	15
9.3	Biodiversity	16
9.4	Farming system diversity	16
9.5	Soil and water conservation, including erosion control	16
9.6	Soil fertility and crop nutrient management	17
9.7	Manure management	18
9.8	Pest, disease and weed management	19
9.9	Seeds, seedlings, and planting materials	19
9.10	Mushroom production	20
9.11	Sprout production	21
9.12	Greenhouse crops production	21
9.13	Contamination	22
9.14	Draught animals	23
10	Animal production	23

10.1	General principles	23
10.2	Livestock sources/origin	23
10.3	Conversion and brought-in animals	24
10.4	Parallel production	26
10.5	Livestock management	26
10.6	Housing and free-range conditions	26
10.7	Breeding	31
10.8	Physical alterations	31
10.9	Livestock feeds	32
10.10	Livestock healthcare management	34
10.11	Transport and slaughter	37
10.12	Manure management	37
10.13	Record keeping and identification	38
11	Apiculture (bee-keeping)	38
11.1	General principles	38
11.2	Location and construction	38
11.3	Conversion and brought-in bees and swarms	39
11.4	Forage and feeding	39
11.5	Health of bees	39
11.6	Management and harvest	40
11.7	Extraction, processing and storage	41
11.8	Record keeping	41
12	Wild collection	41
13	Handling, storage and processing	42
13.1	Integrity	42
13.2	Ingredients	42
13.3	Technologies	42
13.4	Additives and processing aids	43
13.5	Food fortification	43
13.6	Packaging materials	43
13.7	Pest management	43
13.8	Storage and transport	44
13.9	Hygiene	44
14	Labelling and claims	44
Annex A (informative)	IFOAM principles of organic agriculture	47
Annex B (informative)	Permitted substances for the production of organic foods	49
Annex C (normative)	Prohibited substances, methods or ingredients in organic production and handling	62
Annex D (informative)	List of additives and processing aids for organic food processing	63
Annex E (normative)	Minimum inspection requirements and precautionary measures under the inspection or certification system	72
Bibliography	76

Foreword

The African Organization for Standardization (ARS) is an African intergovernmental organization made up of the United Nations Economic Commission for Africa (UNECA) and the Organization of African Unity (AU). One of the fundamental mandates of ARSO is to develop and harmonize African Standards (ARS) for the purpose of enhancing Africa's internal trading capacity, increase Africa's product and service competitiveness globally and uplift the welfare of African communities. The work of preparing African Standards is normally carried out through ARSO technical committees. Each Member State interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, regional economic communities (RECs), governmental and non-governmental organizations, in liaison with ARSO, also take part in the work.

ARSO Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare ARSO Standards. Draft ARSO Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an ARSO Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ARSO shall not be held responsible for identifying any or all such patent rights.

This African Standard was prepared by the ARSO Technical Harmonization Committee on Agriculture and Food Products (ARSO/THC 1).

© African Organisation for Standardisation 2012 — All rights reserved*

ARSO Central Secretariat
International House 3rd Floor
P. O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel. +254-20-224561, +254-20-311641, +254-20-311608
Fax: +254-20-218792
E-mail: arso@arso-oran.org
Web: www.arso-oran.org

* © 2012 ARSO — All rights of exploitation reserved worldwide for African Member States' NSBs.

Copyright notice

This ARSO document is copyright-protected by ARSO. While the reproduction of this document by participants in the ARSO standards development process is permitted without prior permission from ARSO, neither this document nor any extract from it may be reproduced, stored or transmitted in any form for any other purpose without prior written permission from ARSO.

Requests for permission to reproduce this document for the purpose of selling it should be addressed as shown below or to ARSO's member body in the country of the requester:

© African Organisation for Standardisation 2012 — All rights reserved

ARSO Central Secretariat
International House 3rd Floor
P.O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel: +254-20-224561, +254-20-311641, +254-20-311608
Fax: +254-20-218792

E-mail: arso@arso-oran.org
Web: www.arso-oran.org

Reproduction for sales purposes may be subject to royalty payments or a licensing agreement. Violators may be prosecuted.

Introduction

1. The history, culture and community values of Africans are embedded in agriculture. It is the most important source of livelihoods for millions of Africans. The sustainable management of the agriculture production process is therefore crucial if livelihoods are to be sustained.
2. This African Organic Products Standard has been written for organic production in Africa and has been adapted to conditions in Africa. The purpose is to have a single organic standard for organic agriculture production under African conditions. The standard is intended for the development of organic production and trade in the African region. The standards can be a platform for a common label for organic products in Africa and for developing consumer trust. The standard also formulates standpoints which can be used in international negotiations on standards. Further, it can be a basis for equivalence agreements with other countries and regions.
3. This standard has been prepared for the purpose of providing an agreed approach to the requirements which underpin production of, and the labelling and claims for, organically produced foods. This African Organic Products Standard has been based on organic standards currently in place in the region as well as the IFOAM Basic Standards and the Codex Alimentarius guidelines for the production, processing, labelling and marketing of organically produced foods.
4. The aims of this standard are:
 - i) to protect consumers against deception and fraud in the market place and unsubstantiated product claims;
 - ii) to protect producers of organic produce against misrepresentation of other agricultural produce as being organic;
 - iii) to ensure that all stages of production, preparation, storage, transport and marketing are subject to inspection and comply with these guidelines;
 - iv) to harmonize provisions for the production, certification, identification and labelling have organically grown produce;
 - v) to provide international guidelines for organic food control systems in order to facilitate recognition of national systems as equivalent for the purposes of imports; and
 - vi) to maintain and enhance organic agricultural systems in each country so as to contribute to local and global preservation.
5. This standard is intended for certification and regulation to prevent deceptive practices in the marketplace. The certification of a process, rather than a final product, demands responsible action by all involved parties.
6. This standard sets out the principles of organic production at farm, preparation, storage, transport, labelling and marketing stages, and provides an indication of accepted permitted inputs for soil fertilizing and conditioning, plant pest and disease control and, food additives and processing aids. For labelling purposes, the use of terms inferring that organic production methods have been used are restricted to products derived from operators under the supervision of a certification body or authority.
7. Organic agriculture is one among the broad spectrum of methodologies which are supportive of the environment. Organic production systems are based on specific and precise standards of production which aim at achieving optimal agroecosystems which are socially, ecologically and economically sustainable. Terms such as “biological” and “ecological” are also used in an effort to describe the organic system more clearly. Requirements for organically produced

foods differ from those for other agricultural products in that production procedures are an intrinsic part of the identification and labelling of, and claim for, such products.

8. "Organic" is a labelling term that denotes products that have been produced in accordance with organic production standards and certified by a duly constituted certification body or authority. Organic agriculture seeks to minimize the use of external inputs, avoiding the use of synthetic drugs, fertilizers and pesticides and aims at optimising the health and productivity of interdependent communities of soil life, plants, animals and people. It builds on Africa's rich heritage of indigenous knowledge combined with modern science, technologies and practices. Neither this standard nor organic products in accordance with this standard represent specific claims about the health, safety and nutrition of such organic products. However, methods are used to minimize pollution of air, soil and water. Organic food handlers, processors and retailers adhere to standards to maintain the integrity of organic agriculture products. The primary goal of organic agriculture is to optimize the health and productivity of interdependent communities of soil life, plants, animals and people.
9. Organic practices and this standard cannot assure that organic products are entirely free of residues of substances prohibited by this standard and of other contaminants, since exposure to such compounds from the atmosphere, soil, ground water and other sources may be beyond the control of the operator. The practices permitted by this standard are designed to assure the least possible residues at the lowest possible levels.
10. Organic agriculture is a holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, cultural, biological and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system.
11. Organic production is based on principles that support healthy practices. These principles aim to increase the quality and the durability of the environment through specific management and production methods. They also focus on ensuring the humane treatment of animals. The general principles of organic production include the following:
 - (a) Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health.
 - (b) Maintain long-term soil fertility by optimizing conditions for biological activity within the soil.
 - (c) Enhance biological diversity within the whole system.
 - (d) Recycle plant and animal waste materials and resources to the greatest extent possible in order to return nutrients to the land, thus minimizing the use of non-renewable resources.
 - (e) Provide attentive care that promotes the health and meets the behavioural needs of livestock.
 - (f) Prepare organic products, emphasizing careful processing, and handling methods in order to maintain the organic integrity and vital qualities of the products at all stages of production.
 - (g) Rely on renewable resources in locally organized agricultural systems.
 - (h) Promote the healthy use of soil, water and air as well as minimize all forms of pollution thereto that may result from agricultural practices.

- (i) Become established on any existing farm through a period of conversion, the appropriate length of which is determined by site-specific factors such as the history of the land, and type of crops and livestock to be produced.
- 12. The concept of close contact between the consumer and the producer is a long established practice. Greater market demand, the increasing economic interests in production, and the increasing distance between producer and consumer has stimulated the introduction of external control and certification procedures.
- 13. An integral component of certification is the inspection of the organic management system. Procedures for operator certification are based primarily on a yearly description of the agricultural enterprise as prepared by the operator in cooperation with the inspection body. Likewise, at the processing level, standards are also developed against which the processing operations and plant conditions can be inspected and verified. Where the inspection process is undertaken by the certification body or authority, there must be clear separation of the inspection and certification function. In order to maintain their integrity, certification bodies or authorities which certify the procedures of the operator should be independent of economic interests with regard to the certification of operators.
- 14. Apart from a small portion of agricultural commodities marketed directly from the farm to consumers, most products find their way to consumers via established trade channels. To minimize deceptive practices in the market place, specific measures are necessary to ensure that trade and processing enterprises can be audited effectively. Therefore, the regulation of a process, rather than a final product, demands responsible action by all involved parties.
- 15. Import requirements should be based on the principles of equivalency and transparency as set out in CAC/GL 20. In accepting imports of organic products, countries would usually assess the inspection and certification procedures and the standards applied in the exporting country.
- 16. Recognizing that organic production systems continue to evolve and that organic principles will continue to be developed this standard, this African Standard shall be reviewed on a regular basis.

Organic products standard

1 Scope

1.1 This African Standard specifies requirements for organic production. It covers plant production, animal husbandry, bee-keeping, the collection of wild products, and the processing and labelling of the products therefrom. This standard applies to the following products which carry, or are intended to carry, descriptive labelling referring to organic production methods:

- (a) Unprocessed plants and plant products, livestock and livestock products to the extent that the principles of production and specific inspection rules for them are introduced in Clauses 9, 10, 11 and 12 and Annex E; and
- (b) Processed agricultural crop and livestock products intended for human consumption derived from (a) above.
- (c) Livestock feed
- (d) Processed agricultural crop and livestock products intended for animal consumption or use and derived from the items mentioned in (a) above.
- (e) Foods and other agricultural products which come from a farm system employing management practices that seek to nurture ecosystems in order to achieve sustainable productivity; and that provide weed, pest and disease control through enhancement of biodiversity, recycling of plant and animal residues, crop selection and rotation, water management, tillage and cultivation.

1.2 A product will be regarded as bearing indications referring to organic production methods where, in the labelling or claims, including advertising material or commercial documents, the product, or its ingredients, is described by the terms “organic”, “biodynamic”, “biological”, “ecological”, or words of similar intent including diminutives which, in the country where the product is placed on the market, suggests to the purchaser that the product or its ingredients were obtained according to organic production methods.

1.3 Clause 1.2 does not apply where these terms clearly have no connection with the method of production.

1.4 These guidelines apply without prejudice to other provisions governing the production, preparation, marketing, labelling and inspection of the products specified in Clause 1.1.

1.5 All materials and/or the products produced from genetically engineered/modified organisms (GEO/GMO) are not compatible with the principles of organic production (either the growing, manufacturing, or processing) and therefore are not accepted under this standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ARS 53, *General principles of food hygiene — Code of practice*

ARS 56, *Prepackaged foods — Labelling*

CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

CAC/GL 20, *Principles for food import and export inspection and certification*

CAC/GL 25, *Guidelines for the exchange of information between countries on rejections of imported food*

CAC/GL 26, *Guideline for the design, operation, assessment and accreditation of food import and export inspection and certification systems*

CAC/GL 29, *General requirements for natural flavourings*

IFOAM Basic Standards for Organic Production and Processing. Version 2005.

ISO/IEC 17065, *Conformity assessment — Requirements for bodies certifying products, processes and services*

3 Description and definitions

3.1 Description

Foods should only refer to organic production methods if they come from an organic farm system employing management practices which seek to nurture ecosystems which achieve sustainable productivity, and provide weed, pest and disease control through a diverse mix of mutually dependent life forms, recycling plant and animal residues, crop selection and rotation, water management, tillage and cultivation. Soil fertility is maintained and enhanced by a system which optimizes soil biological activity and the physical and mineral nature of the soil as the means to provide a balanced nutrient supply for plant and animal life as well as to conserve soil resources. Production should be sustainable with the recycling of plant nutrients as an essential part of the fertilizing strategy. Pest and disease management is attained by means of the encouragement of a balanced host/predator relationship, augmentation of beneficial insect populations, biological and cultural control and mechanical removal of pests and affected plant parts. The basis for organic livestock husbandry is the development of a harmonious relationship between land, plants and livestock, and respect for the physiological and behavioural needs of livestock. This is achieved by a combination of providing good quality organically grown feedstuffs, appropriate stocking rates, livestock husbandry systems appropriate to behavioural needs, and animal management practices that minimize stress and seek to promote animal health and welfare, prevent disease and avoid the use of chemical allopathic veterinary drugs (including antibiotics).

3.2 Definitions

For the purpose of this standard the following definitions apply.

3.2.1

agricultural product/product of agricultural origin

an animal, a plant, an animal or a plant product, or a product, including any food or drink wholly or partly derived from an animal or a plant

3.2.2

audit

a systematic and functionally independent examination to determine whether activities and related results comply with planned objectives

3.2.3

biodiversity

the variety of life: it includes genetic diversity (i.e., diversity within and among species), species diversity (i.e., the number and variety of species), and ecosystem diversity (total number of ecosystem types)

3.2.4

breeding

selection of plants or animals to reproduce or to further develop desired characteristics in succeeding generations

3.2.5**buffer zone**

a clearly defined and identifiable boundary area bordering an organic production site and adjacent areas that is established to avoid contact with substances which shall not be used according to this standard

3.2.6**certification**

the procedure by which official certification bodies, or officially recognized certification bodies, provide written or equivalent assurance that foods or food control systems conform to requirements. Certification of food may be, as appropriate, based on a range of inspection activities which may include continuous on-line inspection, auditing of quality assurance systems and examination of finished products.⁴

3.2.7**certification body**

a body which is responsible for verifying that a product sold or labelled as “organic” is produced, processed, prepared handled, and imported according to these guidelines

3.2.8**child**

a person under the specified age in the respective national legislations. In cases involving employment in hazardous sectors, *child* denotes a person under the age of 18 years

3.2.9**child labour**

any employment that interferes with the legal rights of a child and culturally appropriate educational needs

3.2.10**competent authority**

the official government agency having jurisdiction

3.2.11**contamination**

pollution of organic product or land or contact with any material that would render the product unsuitable for organic production or as an organic product

3.2.12**conventional**

any material, production, or processing practice that is not organic or organic “in-conversion”

3.2.13**conversion period**

the time between the start of organic management and the time when crops and animal products qualify as organic

3.2.14**crop rotation**

the practice of alternating the species or families of annual and/or biennial crops grown in a certain field in a pattern or sequence so as to break weed, pest and disease cycles and to maintain or improve soil fertility and the content of organic matter

3.2.15**food additive**

any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably

expected to result, (directly or indirectly) in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants, or substances added to food for maintaining or improving nutritional qualities, or sodium chloride

3.2.16

food fortification

the addition of one or more essential nutrients to a food, whether or not it is normally contained in the food, for the purpose of preventing or correcting a demonstrated deficiency of one or more nutrients in the population or specific population groups

3.2.17

genetic engineering

a set of techniques from molecular biology (such as recombinant DNA) by which the genetic material of plants, animals, microorganisms, cells and other biological units are altered in ways or with results that could not be obtained by methods of natural mating and reproduction or natural recombination. Techniques of genetic modification include, but are not limited to, recombinant DNA, cell fusion, micro and macro injection, encapsulation, gene deletion and doubling. Genetically engineered organisms do not include organisms resulting from techniques such as conjugation, transduction and natural hybridization

3.2.18

genetically modified organism (GMO)

a plant, animal or microbe that has been transformed by genetic engineering

3.2.19

genetically engineered/modified organisms

genetically engineered/modified organisms, and products thereof, are produced through techniques in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination. Techniques of genetic engineering/modification include, but are not limited to: recombinant DNA, cell fusion, micro and macro injection, encapsulation, gene deletion and doubling. Genetically engineered organisms will not include organisms resulting from techniques such as conjugation, transduction and hybridization.

3.2.20

green manure

a crop that is incorporated into the soil for the purpose of soil improvement and which may include spontaneous crops, plants or weeds

3.2.21

habitat

the area over which a plant or animal species naturally exists; the area where a species occurs. It is also used to indicate types of habitat, e.g., seashore, riverbank, woodland, and grassland

3.2.22

ingredient

any substance, including a food additive, used in the manufacture or preparation of food and non-food products and present in the final product (although possibly in a modified form)

3.2.23

ionizing radiation

processing of food products by gamma rays, X-rays or accelerated electrons capable of altering a food's molecular structure for the purpose of controlling microbial contaminants, pathogens, parasites and pests in food, preserving food or inhibiting physiological processes such as sprouting or ripening

3.2.24

inspection

the examination of food or systems for control of food, raw materials, processing, and distribution including in-process and finished product testing, in order to verify that they conform to requirements. For organic food, inspection includes the examination of the production and processing system.

3.2.25**label**

any written, printed or graphic representation that is present on a product, accompanies the product or is displayed near the product

3.2.26**livestock**

any domestic or domesticated animal including bovine (including buffalo and bison), ovine, porcine, caprine, equine, poultry and bees raised for food or in the production of food. The products of hunting or fishing of wild animals shall not be considered part of this definition.

3.2.27**marketing**

holding for sale or displaying for sale, offering for sale, selling, delivering or placing on the market in any other form

3.2.28**official accreditation**

the procedure by which a government agency having jurisdiction formally recognizes the competence of an inspection and/or certification body to provide inspection and certification services. For organic production the competent authority may delegate the accreditation function to a private body.

3.2.29**officially recognized inspection systems****officially recognized certification systems**

systems which have been formally approved or recognized by a government agency having jurisdiction

3.2.30**operator**

any person who produces, prepares or imports, with a view to the subsequent marketing thereof, products as referred to in Clause 1.1, or who markets such products

3.2.31**organic**

refers to the farming system and products described in this standard. Organic does not refer to organic chemistry

3.2.32**organic agriculture**

a holistic system designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem, including soil organisms, plants, livestock and people. The principal goal of organic production is to develop enterprises that are sustainable and harmonious with the environment.

3.2.33**organic product**

a product which has been produced, processed and handled in compliance with this standard

3.2.34**organic seed and planting material**

seed and planting material that is produced by organic agriculture

3.2.35**parallel production**

any production in which the same unit is growing, breeding, handling or processing the same products in both an organic and a non-organic system. A situation with organic and in-conversion production of the same product is also parallel production

3.2.36**plant protection product**

any substance intended for preventing, destroying, attracting, repelling, or controlling any pest or disease including unwanted species of plants or animals during the production, storage, transport, distribution and processing of food, agricultural commodities, or animal feeds

3.2.37

preparation

the operations of slaughtering, processing, preserving and packaging of agricultural products and also alterations made to the labelling concerning the presentation of the organic production method

3.2.38

processing aid

any substance (not including apparatuses or utensils) not consumed as a food itself and which is used in the processing of raw materials, foods, or ingredients to fulfil a certain technical purpose during treatment or processing and which may result in the presence of residues or derivatives in the final product

3.2.39

production

the operations undertaken to supply agricultural products in the state in which they occur on the farm, including initial packaging and labelling of the product

3.2.40

propagation

the reproduction of plants sexually (i.e., seed) or asexually (i.e., cuttings, root division)

3.2.41

shall

a required state or action

3.2.42

should

a recommended, desirable or expected state or action

3.2.43

synthetic

manufactured by chemical and industrial processes. Includes products not found in nature or simulation of products from natural sources (but not extracted from natural raw materials)

3.2.44

synthetic pesticide

synthetic product intended to prevent, eliminate or control a pest

3.2.45

traceability

the ability to follow the movement of a food through specified stage(s) of production, processing and distribution

3.2.46

in-conversion

a crop which is grown both as organic and non-organic (conventional or in-conversion) on the same farm

3.2.47

veterinary drug

any substance applied or administered to any food-producing animal, such as meat or milk-producing animals, poultry, fish or bees, whether used for therapeutic, prophylactic or diagnostic purposes or for modification of physiological functions or behaviour.

4 General requirements for organic production

4.1 Organic plan

4.1.1 The operator of an enterprise shall prepare an organic plan outlining the details of transition, production, preparation, handling and management practices, in accordance with this standard.

4.1.2 The organic plan shall be updated annually to address changes to the plan or management system, problems encountered in executing the plan, and measures taken to overcome such problems.

4.1.3 The organic plan shall include a description of the internal record-keeping system, with documents sufficient to meet traceability requirements as specified in 4.2.3 and record-keeping requirements.

4.2 Documentation, transparency and identification

4.2.1 The operator shall maintain records and relevant supporting documents, appropriate for the scale of production and the ability of the operator, concerning the inputs and details of their use, production, preparation, handling and transport of organic crops, livestock and products.

4.2.2 The operator is responsible for maintaining the organic integrity of the product and shall fully record and disclose all activities and transactions in sufficient detail as to be readily understood; and sufficient to demonstrate compliance to this standard.

4.2.3 Records shall make it possible to trace

- (a) the origin, nature and quantities of organic products, as stated within this standard, that have been delivered to the production unit;
- (b) the nature, quantities and consignees of products, as stated within this standard, that have left the production unit;
- (c) any other information, such as the origin, nature and quantities of ingredients, additives and manufacturing aids delivered to the unit, and the composition of processed products, for the purposes of proper verification of the operations in accordance with this standard.

4.2.4 Records shall be maintained for not less than five years beyond their creation.

4.2.5 An identification system shall be provided for distinguishing organic and non-organic crops, livestock (e.g. general appearance, colour, variety and types) and products.

4.3 Contamination

4.3.1 The operator shall avoid using chemical products that may endanger human health or the environment. Where there are products that are considered to be less harmful, they shall be used.

4.3.2 The operator shall take relevant precautionary measures to avoid the contamination of organic sites and products. Where there is a reasonable suspicion of substantial contamination by, for example, soil, water, air, inputs or ingredients, appropriate actions shall be taken.

Litter and production waste, both on farms and in processing, shall be handled in such a way that they do not contaminate the organic products or the environment.

Chemical products shall be properly labelled and safely stored.

4.3.3 Contamination of organic products that results from circumstances beyond the control of the operator may alter the organic status of the operation, the product or both.

4.4 Genetically Modified Organisms (GMOs)

4.4.1 Genetically modified organisms or their derivatives shall not be used or introduced through negligence or oversight. This includes animals, seed, propagation material, farm inputs such as fertilizers, soil conditioners and crop-protection materials.

CD-ARS 751:2012(E)

4.4.2 Ingredients, additives or processing aids derived from GMOs shall not be used in organic processing.

4.4.3 Inputs, processing aids, and ingredients shall be traced back one step in the biological chain from which they are produced to verify that they are not derived from GMOs.

4.4.4 Genetically modified organisms shall not be used in the conventional production on farms that are not fully converted to organic production.

4.5 Social justice

4.5.1 Employees and workers shall be guaranteed basic human rights and fair working conditions in accordance with national and international conventions and laws.

4.5.2 The operator shall not use forced or involuntary labour.

4.5.3 Employees, casual workers and contractors of organic operations shall have the freedom to associate, the right to organize, and the right to bargain collectively.

4.5.4 Employees shall have equal opportunities and equal wages when performing the same level of work, regardless of colour, creed, ethnicity or gender.

4.5.5 The operator shall not hire child labour. Children may work on their family's farm or a neighbouring farm provided that such work is not dangerous to their health and safety and does not jeopardize their educational, moral, social and physical development. Such work shall be supervised by adults and authorized by a legal guardian.

4.5.6 The operator shall provide adequate health and safety measures for employees, casual workers and contractors.

4.5.7 An operator employing five or more permanent workers shall have a documented policy covering the aspects of 4.5.

4.6 Adherence to relevant legislation

The operator shall act in accordance with relevant legislation.

4.7 Knowledge about organic production

The operator shall ensure that all persons involved in organic production have adequate knowledge of organic production and the relevant parts of this standard.

5 Rules of production and preparation

5.1 Organic production methods require that for the production of products referred to in Clause 1.1(a):

- a) at least the production requirements of Clauses 9, 10, 11 and 12 shall be satisfied;
- b) in the case where (a) (above) is not effective, substances listed in Table B.1 and Table B.2 or substances approved by individual countries that meet the criteria established in 6.1, may be used as plant protection products, fertilizers, soil conditioners, insofar as the corresponding use is not prohibited in general agriculture in the country concerned in accordance with the relevant national provisions.

5.2 Organic processing methods require that for the preparation of products referred to in Clause 1.1(b):

- a) at least the processing requirements of Clauses 9, 10, 11 and 12 should satisfied;

- b) substances listed in Table D.1 and Table D.2 or substances approved by individual countries that meet the criteria established in 6.1 may be used as ingredients of non-agricultural origin or processing aids insofar as the corresponding use is not prohibited in the relevant national requirements concerning the preparation of food products and according to good manufacturing practice.

5.3 Organic products should be stored and transported according to the requirements of Clause 13.

5.4 By derogation of the provisions of 5.1 (a) and 5.2 (a), the competent authority may, with regard to the provisions on livestock production at Clause 10, provide for more detailed rules as well as for derogations for implementation periods in order to permit gradual development of organic farming practices.

6 Requirements and criteria for inclusion of substances in Annex B

NOTE The criteria in this section do not apply to packaging materials, equipment surfaces, or other non-reactive substances. In creating and maintaining these lists, generic substances are not to be confused with brand name substances which may have added formulants, surfactants or wetting agents, the impact of which should be evaluated under a different process on a product-by-product basis.

6.1 Substance list review procedures

6.1.1 Substances to be added to or deleted from Annex B, shall be evaluated for compliance with the criteria outlined in 6.2 to 6.5 inclusive.

6.1.2 The system of review criteria detailed in this standard shall be the primary determinant for accepting or rejecting the addition of a substance to Annex B.

6.1.3 In evaluating substances for inclusion in Annex B, all stakeholders shall have an opportunity to be involved.

6.2 Permitted substance criteria

6.2.1 Substances included in the lists, with exceptions as noted, shall be consistent with

- (a) the general principles of organic production as set out in this standard:
- (i) Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health.
 - (ii) Maintain long-term soil fertility by optimizing conditions for biological activity within the soil.
 - (iii) Maintain biological diversity within the system.
 - (iv) Recycle materials and resources to the greatest extent possible within the enterprise.
 - (v) Provide attentive care that promotes the health and meets the behavioural needs of livestock.
 - (vi) Prepare organic products, emphasizing careful processing, and handling methods in order to maintain the organic integrity and vital qualities of products at all stages of production.
 - (vii) Rely on renewable resources in locally organized agricultural systems.
- (b) the prohibitions set out in Annex C of this standard.

6.2.2 Each substance shall be reviewed concerning its necessity, origin and mode of production, and the impacts of its production and envisioned use. These criteria are intended to be evaluated as a

whole in order to protect the integrity of organic production. Each review shall include a detailed description and all information that demonstrates conformance to 6.3, 6.4 and 6.5. All available alternatives, including substances and practices that may currently be in use in other production systems, must be included in the evaluation.

6.2.3 After a decision on inclusion of a substance in Annex B, has been made, any conditions governing its origin and usage shall be specified according to 6.6.

6.3 Necessity of a substance

6.3.1 Soil amendments

Substances used on soils and plants as amendments and listed in Annex B, shall be necessary for obtaining or maintaining soil fertility or to fulfil specific requirements of crops, or specific soil conditioning and rotational purposes that cannot be satisfied by the requirements and practices of this standard.

6.3.2 Crop production aids and materials

Substances used for the management of diseases, insects, weeds and other pests of plants and listed in Annex B, shall be necessary for that purpose and shall be included when no other adequate biological, physical or plant breeding alternatives or effective management practices are available.

6.3.3 Livestock Production Substances

6.3.3.1 Substances used as livestock feed additives and supplements and listed in Annex B, shall be

- (a) necessary to correct documented essential nutrient deficiencies in the forage or feed ration, given that other biological, cultural or physical treatments are not available; or
- (b) necessary for ensuring and preserving product quality, given that other biological, cultural or physical treatments are not available.

6.3.3.2 Substances used as livestock health care products and production aids and listed in Annex B, shall be necessary to prevent or treat livestock health problems provided that other organic treatments are not available.

6.3.4 Food ingredients and processing aids

In the absence of other available technology or substances that satisfy this standard, substances added to, or used in, the preparation, handling and storage of organic food products and listed in Annex B, shall be

- (a) necessary to correct documented essential nutrient deficiencies of the product (i.e. vitamins and minerals); or when required by regulations; or
- (b) essential for ensuring the safety of the product; or
- (c) used only when it is not feasible/practical to produce or store such products without having recourse to such ingredients and processing aids; or
- (d) necessary to achieve a technological effect during processing (e.g. filtration) or an organoleptic effect in the final product (e.g. colouring and flavouring) while respecting the principle in 6.2.1 (a) (vi).

6.3.5 Sanitation and pest control substances

Substances used for sanitizing production and processing equipment and facilities and for emergency pest control in such facilities that are listed in Annex B, shall be necessary and appropriate for the intended use.

6.4 Origin and mode of production of a substance

6.4.1 Soil amendments and crop production aids

Substances used in soil conditioning and crop production shall be of plant, animal, microbial or mineral origin and may undergo the following processes during production:

- (a) Physical (e.g. mechanical or thermal)
- (b) Enzymatic
- (c) Microbial (e.g. composting, fermentation or digestion).

6.4.1.1 Substances of plant and animal origin shall be derived from crops and livestock produced in accordance with this standard unless such substances are not commercially available.

Exceptions: Substances produced by chemical processes or processes that chemically alter substances of plant, animal, microbial or mineral origin (i.e. synthetic compounds) may be considered for inclusion in 4.1 if all of the following conditions are met:

- (a) They meet the criteria for necessity in 6.3 and take into consideration the impacts described in 6.5.
- (b) Non-synthetic forms of these substances are not available in sufficient quality or quantity.
- (c) They are annotated and reviewed as required by 6.6 and 6.7.

6.4.2 Livestock production substances

6.4.2.1 Substances of plant origin used as or added to livestock feed shall be obtained from organic sources in accordance with this standard or from sources occurring in nature such as for marine products. Substances of mineral origin shall only be used if they are of natural origin.

Exceptions: Synthetic substances may be included if they meet all of the following conditions:

- (a) They meet the criteria for necessity in 6.3 and take into consideration the impacts described in 6.5.
- (b) Non-synthetic forms of these substances are not available in sufficient quality or quantity.
- (c) They are annotated and reviewed as required by 6.6 and 6.7.

6.4.2.2 Substances used for livestock health care and production aids shall be of organic or non-synthetic origin whenever possible. Synthetic substances may be included subject to the annotation and review requirements in 6.6 and 6.7.

6.4.3 Food ingredients and processing aids

Substances used as food ingredients or processing aids Annex B shall be found in nature and may have undergone the following processes during production:

- (a) Mechanical/physical (e.g. extraction, precipitation)
- (b) Enzymatic
- (c) Microbial (e.g. fermentation).

CD-ARS 751:2012(E)

6.4.3.1 Substances of plant and animal origin shall be derived from crops and livestock produced in accordance with this standard. Substances of microbial origin shall be obtained using organic substrate.

Exceptions: Substances that are not from organic sources or that have been chemically synthesized may be considered for inclusion under the following conditions:

- (a) They meet the criteria for necessity in 6.3 and take into consideration the impacts described in 6.5.
- (b) Organic sources or, as applicable, non-synthetic sources of these substances are not available in sufficient quality or quantity.
- (c) They are annotated and reviewed as required by 6.6 and 6.7.

6.4.4 Sanitation and pest control substances

Substances used for facility sanitation and emergency pest control in such facilities may be of synthetic origin under the following conditions:

- (a) They meet the criteria for necessity in 6.3 and take into consideration the impacts described in 6.5.
- (b) Non-synthetic forms of these substances are not available in sufficient quality or quantity.
- (c) They are annotated and reviewed as required in 6.6 and 6.7.

6.5 Impact of a substance

Consideration shall be given to the following impacts when evaluating a substance for inclusion in Annex B.

6.5.1 All substances

- (a) The impact of a substance's manufacture and disposal after use on the environment including impacts on ecology, surface and ground water, and soil and air quality including substance persistence, degradation and concentration effects.
- (b) The impact on equivalency and harmonization of this standard with standards and regulations of other jurisdictions.

6.5.2 Substances used in primary crop and livestock production

The on-farm impact of the use and potential misuse of the substances listed in Annex B, on

- (a) soil quality including biological diversity and activity, structure, salinity, sodicity, erodability and tilth;
- (b) surface and ground water quality;
- (c) ecosystems (in particular non-target organisms) including wildlife and wildlife habitat;
- (d) animal and human health, when applicable.

6.5.3 Food ingredients and processing aids

The impact of the use and potential misuse of the substances listed in Annex B, on

- (a) human health through both food and non-food exposure, including acute and chronic toxicity, allergenicity and metabolites;

- (b) product quality, including nutrition, flavour, taste, appearance and storage, when applicable;
- (c) consumer perception of the nature, substance and quality of a food product.

6.6 Origin and usage annotation

When applicable, the annotation accompanying a substance shall include

- (a) any restrictions concerning its origin and mode of production,
- (b) any restrictions concerning its composition and usage.

6.7 Exceptions

All substances included in Annex B, under exception criteria shall be

- (a) identified as exceptions to the criteria;
- (b) re-evaluated for compliance according to the procedures set out in 6.1 each time this standard and Annex B, are subject to full review.

7 Inspection and certification systems

7.1 Inspection and certification systems are used to verify the labelling of, and claims for, organically produced foods. Development of these systems should take into account the provisions of CAC/GL 20, CAC/GL 26 and ISO/IEC 17065.

7.2 Competent authorities should establish an inspection system operated by one or more designated authorities and/or officially recognized inspection/certification¹ bodies to which the operators producing, preparing or importing products as referred to in Clause 1.1 should be subject.

7.3 The officially recognized inspection and certification systems should comprise at least the application of the measures and other precautions set out in Annex E.

7.4 For the application of the inspection system operated by the official or officially recognized certification body or authority, countries should identify a competent authority responsible for the approval and supervision of such bodies:

- a) the identified competent authority may delegate, while maintaining the responsibility for the decisions and actions taken, the assessment and supervision of private inspection and certification bodies to a private or public third party hereafter referred to as its "designate". If delegated, the private or public third party should not be engaged in inspection and/or certification;
- b) for this purpose an importing country may recognize a third party accrediting body when the exporting country lacks an identified competent authority and a national program.

7.5 In order to attain approval as an officially recognized certification body or authority, the competent authority, or its designate, when making its assessment should take into account the following:

- a) the standard inspection/certification procedures to be followed, including detailed description of the inspection measures and precautions which the body undertakes to impose on operators subject to inspection;

¹ In organic approval processes reference is frequently made to certification performed by either a 'certification body' or an 'inspection body'. Where these functions are conducted by the same body there must be clear separation of the inspection and certification roles.

CD-ARS 751:2012(E)

- b) the penalties which the body intends to apply where irregularities and/or infringements are found;
- c) the availability of appropriate resources in the form of qualified staff, administrative and technical facilities, inspection experience and reliability;
- d) the objectivity of the body vis-à-vis the operators subject to inspection.

7.6 The competent authority or its designate should:

- a) ensure that the inspections carried out on behalf of the inspection or certification body are objective;
- b) verify the effectiveness of inspections;
- c) take cognizance of any irregularities and/or infringements found and penalties applied;
- d) withdraw approval of the certification body or authority where it fails to satisfy the requirements referred to in (a) and (b) or, no longer fulfils the criteria indicated in 7.5 or, fails to satisfy the requirements laid down in 7.7 to 7.9.

7.7 Official and/or officially recognized certification bodies or authority referred to in 7.2 should:

- (a) ensure that at least the inspection measures and precautions specified in Annex E are applied to undertakings subject to inspection; and
- (b) not disclose confidential information and data obtained in their inspection or certification activities to persons other than the person responsible for the undertaking concerned and the competent authorities.

7.8 Official or officially recognized inspection and/or certification bodies or authority should:

- (a) give the competent authority or its designate, for audit purposes, access to their offices and facilities and, for random audit of its operators, access to the facilities of the operators, together with any information and assistance deemed necessary by the competent authority or its designate for the fulfilment of its obligations pursuant to these guidelines;
- (b) send to the competent authority or its designate each year a list of operators subject to inspection for the previous year and present to the said authority a concise annual report.

7.9 The designated authority and the official or officially recognized certification body or authority referred to in 7.2 should:

- (a) ensure that, where an irregularity is found in the implementation of Clauses 5 and 14, or of the measures referred to in Annex E, the indications provided for in Clause 1.2 referring to the organic production method are removed from the entire lot or production run affected by the irregularity concerned;
- (b) where a manifest infringement, or an infringement with prolonged effects is found, prohibit the operator concerned from marketing products with indications referring to the organic production method for a period to be agreed with the competent authority or its designate.

7.10 The requirements of CAC/GL 25 should apply where the competent authority finds irregularities and/or infringements in the application of these guidelines.

8 Imports

8.1 Products as specified in Clause 1.1 which are imported may be marketed only where the competent authority or designated body in the exporting country has issued a certificate of inspection stating that the lot designated in the certificate was obtained within a system of production,

preparation, marketing and inspection applying at least the rules provided for in all sections and annexes of these guidelines and satisfy the decision on equivalency referred to under 8.4.

8.2 The certificate referred to in 8.1 should accompany the goods, in the original copy, to the premises of the first consignee; thereafter the importer should keep the transactional certificate for not less than two years for inspection/audit purposes.

8.3 The authenticity of the product should be maintained after import through to the consumer. If imports of organic products are not in conformity with the requirements of these guidelines due to treatment required by national regulations for quarantine purposes that is not in conformity with these guidelines they lose their organic status.

8.4 An importing country may:

- a) require detailed information, including reports established by independent experts mutually agreed between competent authorities of the exporting and importing countries, on the measures applied in the exporting country to enable it to make judgements and decisions on equivalency with its own rules provided that these rules of the importing country meet the requirements of these guidelines, and/or
- b) arrange together with the exporting country for site visits to examine the rules of production and preparation, and the inspection/certification measures including production and preparation itself as applied in the exporting country.
- c) require, in order to avoid any confusion to the consumer, that the product is labelled in accordance with the labelling requirements applied, in accordance with the provisions of Clause 14, in the importing country for the products concerned.

9 Crop production

9.1 Conversion period and requirements

9.1.1 The conversion period for land shall be a minimum of one year of management according to this standard. If land that has been in fallow for at least one year is brought into production, no conversion period shall apply for that land.

9.1.2 The conversion period may be extended depending on past land use (for example, heavy use of pesticides with a risk of contamination of products and the nature of contaminants).

9.1.3 Whatever the length of the conversion period it may only begin once a production unit has been placed under an inspection system as required by 7.2 and once the unit has started the implementation of the production rules referred to in Clause 5 of this standard.

9.2 Farm conversion and parallel production

9.2.1 In cases where a whole farm is not converted at one time, it may be done progressively whereby these guidelines are applied from the start of conversion on the relevant fields. Conversion from conventional to organic production should be effected using permitted techniques as defined in this standard. In cases where a whole farm is not converted at the same time, the organic, in-conversion and conventional parts of the farm shall be clearly and continuously separated (see Annex E, E.3 and E.11).

9.2.2 Land converted to organic production shall not be alternated (switched back and forth) between organic and conventional production methods.

9.2.3 The following conditions shall be observed for parallel production:

- (a) The operator shall clearly demonstrate that the identity of the crops so produced can be maintained during their production, harvesting, storage, processing, packaging and marketing.

- (b) The operator shall maintain verifiable, accurate records of both non-organic and organic produce and product storage, transportation, processing and marketing.

NOTE Parallel production crops both organic and non-organic must be inspected just prior to harvest and an audit of all parallel production crops must occur after harvest.

9.2.4 All production units shall have distinct, defined boundaries.

9.2.5 When unintended contact with substances prohibited by Annex C is possible, distinct buffer zones or other features sufficient to reasonably prevent contamination are required.

(a) Buffer zones shall be at least 8 m wide.

(b) Permanent hedgerows or plant windbreaks, artificial windbreaks, permanent roads or other adequate physical barriers may be used instead of buffer zones.

9.2.6 Crops grown in buffer zones shall be considered non-organically grown products whether they are used on the farm or not.

9.2.7 Measures shall be taken to minimize the physical movement of substances prohibited by Annex C from neighbouring areas onto organic farmland and crops. Similarly, measures shall be taken to minimize the contamination of land and crops with such substances.

9.3 Biodiversity

9.3.1 The operator shall demonstrate care for biodiversity throughout the farm holding.

9.3.2 Culturally or legally protected primary ecosystems, such as primary forests and wetlands, shall not be cleared or drained for the purpose of establishing production according to this standard.

9.3.3 To the extent possible and appropriate to the crop and the conditions, trees shall be present in the fields.

NOTE Older, fruiting trees are especially important to insects and birds.

9.3.4 Natural boundaries such as hedges, paths and ditches should be encouraged.

NOTE Hedges, paths and ditches act as important wildlife corridors through agricultural land, help to maintain a diverse ecology, and provide a habitat for many beneficial animals and insects and shelter for livestock.

9.4 Farming system diversity

9.4.1 Diversity in plant production, organic matter, soil fertility, microbial activity and soil and plant health shall be stimulated by crop rotation, intercropping, agro-forestry and other appropriate measures.

For annual crops, crop rotation shall be practised.

For perennial crops, other plants shall be intercropped. For perennial crops that are grown as monocultures where intercropping is not possible (e.g., sugarcane and tea), other means to secure diversity shall be applied to the growing system.

9.4.2 The operator is encouraged to use and preserve indigenous breeds, varieties and species of plants and animals.

9.5 Soil and water conservation, including erosion control

9.5.1 Soil conservation shall be an integral part of the organic farming system. In order to prevent erosion by wind and water, the operator shall take measures appropriate to the specific local conditions of climate, soil, slope and land use. Examples are the use of windbreaks, soil cover, cover crops, minimum tillage, fallowing (with vegetation cover), mulching, terraces and contour planting.

9.5.2 Relevant measures shall be taken to prevent or remedy the salinisation of soil and water.

9.5.3 Burning of vegetation shall be restricted and controlled to protect organic matter and biodiversity.

9.5.4 The operator shall not deplete or excessively exploit water resources and shall seek to conserve water resources and quality. Where necessary, the operator shall collect or harvest rainwater.

9.6 Soil fertility and crop nutrient management

9.6.1 The main objective of the soil fertility and crop nutrient management program shall be to establish and maintain a fertile soil using practices that maintain or increase soil humus levels, that promote an optimum balance and supply of nutrients, and that stimulate biological activity within the soil.

9.6.2 The fertility and biological activity of the soil should be maintained or increased, where appropriate, by:

- (a) crop rotations, which shall be as varied as possible and include plough-down, legumes, catch crops or deeprooting plants;
- (b) incorporating plant and animal matter that can be obtained from organic production in compliance with this standard and that include the following:
 - (i) incorporation in the soil of organic material, composted or not, from holdings producing in accordance with these guidelines. By-products from livestock farming, such as farmyard manure, may be used if they come from livestock holdings producing in accordance with this standard. They shall not be rendered more soluble by chemical treatment, other than the addition of water. Mineral fertilizers may only be used for long-term fertility needs along with other techniques such as organic-matter additions, green manures, crop rotations and nitrogen fixation by plants.
 - (ii) Non-composted plant matter, specifically legumes, plough-down crops or deep-rooting plants within the framework of an appropriate multiyear rotation plan
 - (iii) Non-processed animal manure, including liquid manure and slurry
 - (iv) Animal manures that have been processed using physical (e.g. dehydration), biological or chemical treatment only with substances permitted by Annex B. Techniques for processing animal manure shall minimize the loss of nutritional elements.
- (c) for compost activation, appropriate micro-organisms or plant-based preparations may be used;
- (d) biodynamic preparations from stone meal, farmyard manure or plants may also be used.

9.6.3 The operator shall select and implement tillage and cultivation practices that maintain or improve the physical, chemical and biological condition of soil, that minimize damage to the structure and tilth of soil, and that minimize soil erosion.

9.6.4 The operator shall manage plant and livestock materials to maintain or improve soil organic matter content, crop nutrients, and soil fertility in a manner that does not contribute to the contamination of crops, soil or water, by plant nutrients, pathogenic organisms, heavy metals or residues of substances prohibited by Annex C.

9.6.5 Except as provided in 9.7.1, the organic matter produced on the enterprise shall be the basis of the nutrient cycling program and may be supplemented with off-farm organic and non-organic nutrient sources specified in Annex B.

CD-ARS 751:2012(E)

9.6.6 The operator shall not use burning to dispose of crop residues produced on the operation, except that burning may be used to suppress the spread of disease or to stimulate seed germination.

9.6.7 Fertilizers and soil conditioners approved for use in organic agriculture according to the IFOAM Basic Standards or CAC GL 32 may be used.

Fertilizers and soil conditioners of synthetic origin may be used if listed in Annex B.

Fertilizers and soil conditioners of natural origin may be used unless listed in Annex C.

Substances, as specified in Annex B may be applied only to the extent that adequate nutrition of the crop or soil conditioning are not possible by the methods set out in 9.6.2(a) and (b) above or, in the case of manures, they are not available from organic farming.

9.7 Manure management

9.7.1 Manure sources

The operator shall first use all available animal manure produced on the organic operation (onfarm) and then may use manure from other organic operations (off-farm). When manure from organic operations is not available in sufficient quantities, the operator may use manure from non-organic farm operations provided that

- (a) the non-organic operation is not a fully caged system where livestock are not able to turn 360°;
- (b) livestock are not permanently kept in the dark;
- (c) the source of manure, type of livestock, evaluation of the criteria mentioned in (a) and (b), and quantity shall be recorded.

NOTE Organic operations should make it a priority to use manure obtained from transition or extensive livestock operations and not originating from landless livestock production operations or from livestock operations using genetically modified organisms (GMOs) and their derivatives in animal feeds.

9.7.2 Land application of manure

9.7.2.1 The essential elements of an organic manure application program shall address land area, rate of application, time of application, soil incorporation and retention of nutrient components.

9.7.2.2 All soil amendments including liquid manure, slurries, compost tea, solid manure, raw manure, compost and other approved substances shall be applied to land in accordance with nutrient management planning principles.

9.7.2.3 Where manure is applied, the soil shall be sufficiently warm and moist to ensure active bio-oxidation.

9.7.2.4 In season, the timing, rate and method of manure application shall be designed to ensure that manure application

- (a) does not contribute to the contamination of crops by pathogenic bacteria;
- (b) minimizes the potential for run-off into ponds, rivers and streams;
- (c) does not significantly contribute to ground and surface water contamination.

9.7.2.5 The non-composted solid or liquid manure shall be

- (a) incorporated into the soil at least 90 days before the harvesting of crops for human consumption that do not come into contact with soil,

- (b) incorporated into the soil at least 120 days before the harvesting of crops having an edible part that is directly in contact with the surface of the soil or with soil particles.

9.8 Pest, disease and weed management

9.8.1 Pest, disease and weed control shall be centred on organic management practices aimed at enhancing crop health and reducing losses caused by weeds, disease and pests. Pests, diseases and weeds should be controlled by any one, or a combination, of the following measures:

- a) choice of appropriate species and varieties;
- b) appropriate rotation programs;
- c) mechanical cultivation;
- d) protection of natural enemies of pests through provision of favourable habitat, such as hedges and nesting sites, ecological buffer zones which maintain the original vegetation to house pest predators;
- e) diversified ecosystems. These will vary between geographical locations. For example, buffer zones to counteract erosion, agro-forestry, rotating crops, etc.
- f) flame weeding;
- g) natural enemies including release of predators and parasites;
- h) biodynamic preparations from stone meal, farmyard manure or plants;
- i) mulching and mowing;
- j) grazing of animals;
- k) mechanical controls such as traps, barriers, light and sound;
- l) steam sterilization when proper rotation of soil renewal cannot take place.

9.8.2 Inputs for pest, disease, weed or growth management approved for use in organic agriculture according to the IFOAM Basic Standards and CAC/GL 32 may be used.

Active ingredients of natural origin in inputs for pest, disease, weed or growth management may be used unless listed in Annex C.

Active ingredients of synthetic origin may be used if listed in Annex B.

9.8.3 Non-active ingredients, such as carriers and wetting agents, shall not be carcinogens, teratogens, mutagens or neurotoxins.

9.8.4 Only in cases of imminent or serious threat to the crop and where the measures identified in 9.8.1 are, or would not be effective, recourse may be had to products referred to in Annex B.

9.8.5 Application equipment (e.g. spray equipment) used for soil nutrient supplements, disease or pest management on the enterprise shall be cleaned thoroughly between applications to remove residues of applied substances. If products presenting a contamination risk have been previously applied with the equipment, equipment parts from which residue cannot be removed shall be replaced.

9.9 Seeds, seedlings, and planting materials

9.9.1 The operator shall use organic seed, bulbs, tubers, cuttings, annual seedlings, transplants and other propagules produced in accordance with Clause 5.1 for at least one generation or, in the

case of perennial crops, two growing seasons. Where an operator can demonstrate to the official or officially recognized certification body or authority that material satisfying the above requirements is not available, the certification body or authority may support:

- a) in the first instance, use of non-organic untreated seed and planting stock or seed treated only with substances in accordance with this standard, or
- b) if (a) is not available, use of seeds and vegetative reproductive material treated with substances other than those included in Annex B.

9.9.2 Non-organic perennial planting stock may be used provided that the organic products were harvested after such plants have been maintained in accordance with this standard for at least one year. The land on which the stock is planted shall meet the requirements in 9.1.1.

9.9.3 All use of chemically treated seeds, seedlings and planting materials shall be documented.

9.9.4 The competent authority shall establish criteria to limit the application of the derogation in 9.9.1.

9.9.5 Plant varieties, seeds, seed inoculant, germplasm, scions, rootstocks or other propagules developed through the use of genetic engineering are prohibited, in accordance with Annex C.

9.10 Mushroom production

9.10.1 For organic mushrooms or mushroom products, the operator shall manage production units in a manner that ensures the substrates and mushrooms are not in contact with substances prohibited by Annex C. The culture substrate for mushrooms shall be constituted of organic ingredients such as organic grain, seed-cakes and straw obtained from vegetation grown in areas free of substances prohibited by Annex C for at least three years, and shall be composted in accordance with this standard.

Where organic substrates are not commercially available in sufficient quality and quantity, ingredients from conventional production or of natural origin which do not pose a risk of contamination may be used.

9.10.2 Inputs used in mushroom production shall be in accordance with 9.6, 9.8 and 9.9. In the production of organic mushrooms, the operator shall:

- (a) ensure, for new installations or replacement purposes, that only lumber that has not been treated with substances prohibited by Annex C is in contact with the growth substrate;
- (b) maintain an environment throughout the entire growing cycle, harvesting, and post-harvesting process that prevents contact between organically produced mushrooms and substances prohibited by Annex C;
- (c) use as a production substrate, organic agricultural substances that are in accordance with this standard (e.g. organic straw or hay);
- (d) use as a growth substrate, logs, sawdust or other materials derived from wood originating only from trees that have been grown in areas free of substances prohibited by Annex C for at least three years and that have not been treated post-harvest with substances prohibited by Annex C;
- (e) use organic spawn (seed), or if not commercially available, non-organic spawn provided that it has not been treated with a substance prohibited by Annex C and has been produced in accordance with this standard;
- (f) ensure that manure and any non-organic agricultural material used as a growth substrate is composted, in accordance with this standard;

- (g) ensure that cultivation sites are free of debris from understorey and diseased trees;
- (h) ensure that diseased mushroom strains are either burned, moved at least 50 m from a production site (if the diseased logs are kept for study), or moved to an acceptable disposal area;
- (i) precautions shall be taken to prevent disease including the removal of diseased materials and sanitation using substances included in Annex B.

9.10.3 The cleaning and maintenance of equipment and the use of sanitizers and disinfectants shall be limited to substances included in Annex B.

9.11 Sprout production

9.11.1 The operator shall use only seed produced under organic production methods, in accordance with this standard.

9.11.2 The operator shall use sources of water (e.g. potable water, distilled or processed by osmosis) that meet or exceed the quality standards for levels of microbial and chemical contaminants in drinking water.

9.11.3 A water quality monitoring program shall be in place, and the water shall be analyzed at least twice a year (once every six months).

9.11.4 Soluble fertilizers shall not be added to rinsing water.

9.11.5 Growth medium shall conform to the present standards (e.g. free of substances prohibited by Annex C for 36 months).

9.11.6 Substances used for cleaning or sanitizing seeds and sprouts shall be limited to the substances included in Annex B.

9.11.7 Substances used for cleaning and maintenance of equipment shall be limited to the substances included in Annex B.

9.12 Greenhouse crops production

9.12.1 The operator shall manage soil and crop production units with an in-ground permanent soil system or with a container system with soil free of substances prohibited by Annex C. In-ground permanent soil systems shall be free of substances prohibited by Annex C for at least three years before use. The operator shall totally abstain from using hydroponics and aeroponics.

9.12.2 The operator may use supplemental heat with proper exhaust of burnt gasses, and supplemental lighting. Supplemental nutrition may be used in accordance with Annex B.

9.12.3 Plants and soil, including potting soil, shall not be in contact with substances prohibited by Annex C, including wood used for greenhouse structures or frames of raised beds treated with such substances.

9.12.4 The operator shall

- (a) use reusable and recyclable pots and flats whenever possible;
- (b) use only substances listed in Annex B;
- (c) disinfect holding or storage facilities and equipment using only substances listed in Annex B.

9.12.5 Full-spectrum lighting is permitted.

9.12.6 The following procedures or processes are allowed to

- (a) enrich carbon dioxide levels:
 - (i) flame
 - (ii) fermentation
 - (iii) composting
 - (iv) compressed gas (CO₂);
- (b) clean and disinfect plant containers, pots and flats:
 - (i) substances listed in Annex B
 - (ii) steam-heat sterilization;
- (c) stimulate growth or development:
 - (i) substances listed in Annex B
 - (ii) control of daily temperature and light levels;
- (d) prevent damping-off:
 - (i) low-temperature baking
 - (ii) hot-water treatment
 - (iii) steam treatment.

9.12.7 For the prevention and control of disease, insects or other pests, the following procedures are allowed:

- (a) Substances listed in Annex B
- (b) Pruning
- (c) Roguing
- (d) Vacuuming
- (e) Air filters, screens or other physical devices to exclude pests from the greenhouse environment
- (f) Biological control methods.

9.12.8 Soil regeneration and recycling procedures shall be practiced. Alternatives to crop rotation may be permitted in greenhouse production, such as grafting of plants on disease-resistant rootstock, winter soil-freezing, soil regeneration by incorporating biodegradable plant mulch (e.g. straw or hay), and partial or complete replacement of greenhouse soil or container soil, provided it is re-used outside the greenhouse for another crop.

9.13 Contamination

9.13.1 Where there is an apparent and substantial risk of contamination from adjacent farms, the operator shall implement measures, including barriers and buffer zones, to avoid or limit the contamination.

9.13.2 Machines, equipment and tools (e.g., seed drills, fertilizer spreaders and spraying equipment) used in non-organic production shall be cleaned before they are used in organic production.

9.13.3 Treatment of animals against ticks and other ectoparasites shall be administered in such a way that the risk of the contamination of crop land is minimised.

9.14 Draught animals

Draught animals, when used in organic plant production, shall be treated according to the animal management standards (10.5). Working conditions for draught animals shall not be adverse to the health and development of the animal.

10 Animal production

10.1 General principles

10.1.1 Where livestock for organic production are maintained, they should be an integral part of the organic farm unit and should be raised and held according to this standard.

10.1.2 Livestock can make an important contribution to an organic farming system by:

- a) improving and maintaining the fertility of the soil;
- b) managing the flora through grazing;
- c) enhancing biodiversity and facilitating complementary interactions on the farm; and
- d) increasing the diversity of the farming system.

10.1.3 Livestock production is a land related activity. Herbivores shall have access to pasture and all other animals must have access to open-air runs; the competent authority may allow exceptions when the animals' physiological state, inclement weather conditions, and state of the land so permit, or the structure of certain 'traditional' farming systems restrict access to pasture, providing the welfare of the animals can be guaranteed.

10.1.4 Stocking rates for livestock should be appropriate for the region in question taking into consideration feed production capacity, stock health, nutrient balance, and environmental impact.

10.1.5 Organic livestock management should aim to utilize natural breeding methods, minimize stress, prevent disease, progressively eliminate the use of chemical allopathic veterinary drugs (including antibiotics), reduce the feeding of animals with products of animal origin (e.g. meat meal), and maintain animal health and welfare.

10.2 Livestock sources/origin

10.2.1 The choice of breeds, strains and breeding methods shall be consistent with the principles of organic farming, taking into account in particular:

- a) their adaptation to the local conditions;
- b) their vitality and resistance to disease;
- c) the absence of specific diseases or health problems associated with some breeds and strains (porcine stress syndrome, spontaneous abortion e.tc.).

10.2.2 Livestock used for organic livestock products shall

- (a) be born or hatched on production units conforming to this standard;
- (b) have been the offspring of parents raised under the conditions specified in this standard;
- (c) be raised under this system throughout their life;

- (d) exceptions to the requirements in (a), (b) and (c) are allowed for poultry and for herds or individual animals that are being converted to organic production:
 - (i) Poultry used for edible poultry products shall be poultry that have been under continuous organic management, in accordance with this standard, beginning no later than the second day of life; birds shall not have been given medication other than vaccines.
 - (ii) Animals used for milk production shall have been under continuous organic management, in accordance with this standard, for at least one year.
 - (iii) Animals used for meat shall have been under continuous organic management, in accordance with this standard, from the beginning of the last third of the gestation period (of the dam).
- (e) Livestock may not be transferred between organic and non-organic units. The competent authority can establish detailed rules for the purchase of livestock from other units complying with this standard.
- (f) Livestock existing on the livestock production unit, but not complying with this standard, may be converted.

10.2.3 Animals purchased for breeding shall be from organic enterprises. When an operator can demonstrate to the satisfaction of the official or officially recognized inspection/certification body that livestock satisfying the requirements indicated in 10.2.2, the official or officially recognized inspection/certification body may allow livestock not raised according to this standard under circumstances such as:

- a) for considerable expansion of the farm, when a breed is changed or when new livestock specialization is developed;
- b) for the renewal of a herd, e.g., high mortality of animals caused by catastrophic circumstances;
- c) males for breeding.

The competent authority may set the specific conditions under which livestock from non-organic sources may be allowed or not allowed, taking into account that animals be brought in as young as possible as soon as they are weaned. However, the meat from such animals shall not be organic. Livestock from non-organic sources shall not be considered as organic breeding stock outside the organic operation if raised according to this standard for less than 12 months.

10.2.4 These livestock qualified by the derogations indicated in 10.2.3 shall comply with the conditions set out in 10.3.3. These conversion periods must be observed if the products are to be sold as organic according to Clause 14 of these guidelines.

10.2.5 All livestock or edible livestock products that are removed from an organic enterprise and subsequently managed on a non-organic enterprise shall not be considered as organically produced, in accordance with this standard.

10.3 Conversion and brought-in animals

10.3.1 Transition to organic

10.3.1.1 When an entire dairy herd is being converted to organic production, the operator shall,

- (a) in the first nine months of the transition year, provide a minimum of 80 % feed, calculated by dry matter, that is either organic or raised from land included in the organic system plan and that is managed in accordance with organic crop requirements
- (b) in the final three months of the transition year, provide only organic feed conforming to this standard.

10.3.1.2 The conversion of the land intended for feeding crops or pasture shall comply with the rules set out in 9.1 and 9.2.

10.3.1.3 During the final year of transition, animal feed and pasture of the enterprise can be used as organic by the production unit of the enterprise. The feed shall not be considered as organic outside of this unit.

10.3.1.4 New breeding stock brought onto the farm to expand production may consume third year transition pasture forage during the first and second trimester.

10.3.2 The competent authority may reduce the conversion periods or conditions established in 10.3.1 (for the land) and/or 10.3.3 (for livestock and livestock products) in the following cases:

- a) pasture, open-air runs and exercise areas used by non-herbivore species;
- b) for bovine, equine, ovine and caprine coming from extensive husbandry during an implementation period established by the competent authority or dairy herds converted for the first time;
- c) if there is simultaneous conversion of livestock and land used only for feeding within the same unit, the conversion period for both livestock, pasture and/or land used for animal feed, may be reduced to two years only in the case where the existing livestock and their offspring are fed mainly with products from the unit.

10.3.3 Once the land has reached organic status and livestock from a non-organic source is introduced, and if the products are to be sold as organic, such livestock must be reared according to this standard for at least the following compliance periods:

Type of production	Species	Length of conversion period
Meat production	Bovine and equine	12 months and at least $\frac{3}{4}$ of their life span in the organic management system
	Calves for meat production	6 months when brought in as soon as they are weaned and less than 6 months old
	Ovine and caprine (sheep, goats)	3 months
	pigs	3 months
	poultry	45 days
	rabbits	45 days
Dairy production	All species	3 months
Eggs	All species	45 days

10.3.4 Animals shall be raised organically from birth. Where organic livestock is not available, conventional animals may be brought in, according to the following maximum age limits:

- a) 2-day-old chicks for meat production;
- b) 18-week-old hens for egg production;
- c) 2 weeks old for any other poultry;
- d) 3 months old for piglets;
- e) 3 months old for calves;
- f) 3 months for goats and sheep.

Older animals may be brought in for breeding only.

10.4 Parallel production

All livestock in a single production unit shall be reared in accordance with this standard. Individual animals with non-organic status may be present in the production unit if they are clearly identified and managed in accordance with this standard. Non-organic livestock production units may be present on a farm if clearly identified and kept separate from the organic livestock production.

10.5 Livestock management

10.5.1 Maintenance of livestock should be guided by an attitude of care, responsibility and respect for living creatures.

10.5.2 The operator of an organic livestock operation shall establish and maintain animal living-conditions that accommodate the health and natural behaviour of all animals, including:

- (a) access to the outdoors, shade, shelter, rotational pasture, exercise areas, fresh air and natural daylight suitable to the species, its stage of production, the climate and the environment;
- (b) access to fresh water and high-quality feed in accordance with the needs of the animal;
- (c) sufficient space and freedom to lie down in full lateral recumbency, stand up, stretch their limbs and turn freely, and express normal patterns of behaviour;
- (d) space allowances appropriate to local conditions, feed production capacity, livestock health, nutrient balance of livestock and soils, and environmental impact;
- (e) production techniques that foster the long-term health of livestock, especially where animals are required to provide a high level of production or rate of growth;
- (f) air quality including moisture and dust content shall not prejudice the well-being of the herd/flock;
- (g) appropriate resting and bedding areas in accordance with the needs of the animal;
- (h) company of other animals, particularly of like kind and shall not be mistreated or beaten;
- (i) arrangements to cover emergencies such as the outbreaks of fire, the breakdown of essential mechanical services and the disruption of supplies.

10.5.3 Animals shall have the living conditions and be managed in a way that prevents abnormal behaviour, injury and disease.

10.5.4 Animals shall have the opportunity to feed according to their natural behaviour, e.g., grazing. However, where the bringing of fodder is a more sustainable way to use land resources than grazing, animals may be fed with brought fodder, provided that the animals have access to an outdoor run on a regular basis.

10.5.5 The management of runs and the grazing management of pasture shall be designed to avoid soil degradation, long term damage to vegetation or water contamination.

10.6 Housing and free-range conditions

10.6.1 Housing for livestock will not be mandatory in areas with appropriate climatic conditions to enable animals to live outdoors.

10.6.2 Housing conditions should meet good animal-husbandry practices of the livestock by providing:

- (a) Easy access to sufficient fresh air, water and feed.

- (b) Insulation, heating, cooling and ventilation of the building to ensure that air circulation, dust level, temperature, relative air humidity and gas concentration are kept within limits which are not harmful to the livestock;
- (c) Plentiful natural ventilation and light to enter.
- (d) Animals shall have access to protection from direct sunlight, excessive noise, heat, rain, mud and wind to reduce stress and ensure their well-being.
- (e) Livestock housing with non-slip floors. The floor shall not be entirely of slatted or grid construction. Solid flooring is preferred but where nonslip slatted floors exist, the floor design shall ensure that the foot of the smallest animal cannot be caught in a void. Areas between the voids shall be at least the width of the foot of the animals. Buildings shall have areas for bedding and resting that are sufficiently large, solidly built, comfortable, clean and dry. They shall be covered with a thick layer of dry bedding that can absorb excrement. When a production unit is unable to source sufficient organic bedding and a reasonable regional search has been conducted, involving potential known organic suppliers, bedding material not produced from genetic engineering and free from the application of substances prohibited by Annex C for at least 60 days prior to harvest, may be used.

10.6.3 Animals shall have the living conditions and be managed according to their natural behavioural needs. For example:

- a) Pigs shall be provided with material to root.
- b) Goats shall have the possibility of climbing.
- c) Chickens shall have the possibility of scratching and of taking regular dust baths.

10.6.4 The operator of an organic livestock operation may provide temporary confinement for livestock owing to

- (a) inclement weather;
- (b) conditions where the health, safety or well-being of the animal could be jeopardized given its stage of production;
- (c) risks relating to soil, water or plant quality.

10.6.5 The stocking density in buildings should:

- a) provide for the comfort and wellbeing of the livestock having regard for the species, the breed and the age of the livestock;
- b) take into account the behavioural needs of the livestock with respect to the size of the group and the sex of the livestock;
- c) provide them with sufficient space to stand naturally, lie down easily, turn round, groom themselves, and assume all natural postures and movements such as stretching and wing flapping.

10.6.6 Housing, pens, runs, equipment and utensils should be properly cleaned and disinfected to prevent cross infection and the build-up of disease carrying organisms.

10.6.7 Free-range, open-air exercise areas, or open-air runs should, if necessary, provide sufficient protection against rain, wind, sun and extreme temperatures, depending on the local weather conditions and the breed concerned.

CD-ARS 751:2012(E)

10.6.8 The outdoor stocking density of livestock kept on pasture, grassland, or other natural or semi-natural habitats, must be low enough to prevent degradation of the soil and over-grazing of vegetation.

10.6.9 Tethering may be practised, provided it does not affect the well-being of the animal. The animal shall have access to adequate feed, shade and water. The method of tethering shall enable the animal to freely move within the grazing area without getting entangled or choked. The tethering shall not cause wounds or otherwise physically harm animals.

10.6.10 Animals reared in accordance with the provisions of this standard may be grazed with other animals on common land, provided that:

- (a) this land has not been treated with products other than those allowed in accordance with this standard for at least three years,
- (b) health care and feed products available to organic livestock on common land shall be in accordance with this standard,
- (c) identification permits clear distinction between organically raised animals and non-organically raised animals.

10.6.11 Mammals

- a) All mammals must have access to pasture or an open-air exercise area or run which may be partially covered, and they must be able to use those areas whenever the physiological condition of the animal, the weather conditions and the state of the ground permit.
- b) The competent authority may grant exceptions for:
 - i) the access of bulls to pasture or, in case of cows to an open-air exercise area or run during the winter period;
 - ii) the final fattening phase.

10.6.12 Cattle

The minimum indoor and outdoor space requirements for cattle are as follows:

	Indoor Space	Outdoor Runs and Pens
Adult cows	6 m ² /head	9 m ² /head
Calves	Incremental increase of 2.5 m ² /head for young calves to 5 m ² /head for growing (1-year old) steers and heifers	5 m ² /head to 9 m ² /head, depending on the size of animals

10.6.13 Sheep and goats

The minimum indoor and outdoor space requirements for sheep and goats are as follows:

Indoor Space	Outdoor Runs and Pens
1.5 m ² /head plus 0.35 m ² /head for each additional lamb/kid	2.5 m ² /head plus 0.5 m ² /head for each additional lamb/kid

10.6.14 Housing of dairy calves

10.6.14.1 The housing of calves in individual pens and hutches is permitted provided the following conditions are met:

- (a) Calves may be housed in individual pens until three months of age, providing that they are not tethered and have enough room to turn around, lie down, stretch out when lying down, get up, rest and groom themselves.

- (b) Individual calf pens shall be designed and located so that each calf can see, smell and hear other calves.
- (c) Individual housing shall have an area of at least 2.5 m² and a minimum width of 1.5 m.
- (d) Only hutches with access to an enclosed yard or run are acceptable for outdoor use.

10.6.14.2 Calves shall be group-housed following weaning.

10.6.14.3 As appropriate for the season, dairy replacement calves over nine months of age shall have access to pasture.

10.6.15 Pigs/wild boar (farm-raised)

NOTE This paragraph is in addition to the standards that apply to all livestock.

10.6.15.1 The size of individual livestock operations shall respect a ratio of land-owned, leased or available for spreading manure of animals housed, based on a balance between animal units, feed production and manure management.

Farrow to finish operators shall not exceed 2.5 sows/ha.

10.6.15.2 Pigs shall have access to outdoor exercise areas. Access to pasture is recommended but not mandatory. Outdoor areas for pigs may also include woodlands or other natural environments, in which case the same guidelines regarding pasture management shall apply, i.e. management systems shall be designed to avoid soil degradation, long-term damage to the vegetation or water contamination.

10.6.15.3 Sows shall be kept in groups, except in the last stages of pregnancy and during the suckling period. Management systems shall be designed to avoid restraining sows. Restraint is allowed for a maximum of 5 days when needed for piglet protection. Individual pens are allowed for the protection of females during estrus for a period of up to 5 days or for other health reasons.

10.6.15.4 Piglets shall not be weaned before 4 weeks of age. Earlier weaning is allowed if the welfare of the sow and piglets is compromised.

10.6.15.5 Piglets shall not be kept on flat decks or in piglet cages.

10.6.15.6 Boars may be housed in individual enclosures if there is visual and tactile contact with other pigs.

10.6.15.7 Indoor and outdoor exercise areas shall permit rooting by the animals.

10.6.15.8 The use of nose rings is prohibited.

10.6.15.9 The minimum indoor and outdoor space requirements for pigs are as follows:

	Indoor Space	Outdoor Runs and Pens
Sow and piglets (up to 40 days' old)	7.5 m ² for each sow and litter	Not required
Growing pigs		
a. up to 30 kg b.	0.6 m ² /head	0.4 m ² /head
30-50 kg	0.8 m ² /head	0.6 m ² /head
c. 50-85 kg d.	1.1 m ² /head	0.8 m ² /head
>85 kg	1.3 m ² /head	1.0 m ² /head
Sows in group pens	3 m ² /head	3 m ² /head
Boars in individual pens	9 m ² /head	9 m ² /head

10.6.16 Rabbits

10.6.16.1 The keeping of rabbits in cages is not permitted.

CD-ARS 751:2012(E)

10.6.16.2 The minimum indoor and outdoor space requirements for rabbits are as follows:

	Indoor Space	Outdoor Runs and Pens
Young rabbits	0.3 m ² /head	2 m ² /head
Pregnant does	0.5 m ² /head	2 m ² /head
Does and offspring	0.7 m ² of floor space/doe and offspring	2 m ² /head
Bucks	0.3 m ² /head	2 m ² /head

10.6.12 Poultry

NOTE This paragraph is in addition to the standards that apply to all livestock.

10.6.12.1 The operator of an organic poultry operation shall establish and maintain poultry living conditions that accommodate the health and natural behaviour of poultry.

- (a) The keeping of poultry in row/battery cages is not permitted.
- (b) Poultry shall be reared in open-range conditions and have free access to pasture, open-air runs, and other exercise areas subject to the weather and ground conditions. Outside areas used for poultry shall
 - (i) be covered with vegetation (seeded if necessary) and periodically left empty to allow vegetation to regrow and to prevent disease build-up. As a means of rodent control, a vegetation free perimeter around poultry houses is allowed;
 - (ii) provide protection from predators.
- (c) In emergency situations when outdoor access is considered to result in an imminent threat to the health and welfare of poultry, outdoor access may be restricted. When the imminent threat ends, outdoor access shall resume. Producers shall maintain records documenting periods of confinement.
- (d) Operators shall have an organic plan for their poultry operation that describes outdoor access and how they will protect birds from disease and predators.
- (e) Laying birds may be confined during onset of lay (i.e. until peak production is reached).

10.6.12.2 Ducks and geese shall have access to a water area (stream, pond or lake) created for their use, when weather conditions permit. Facility design shall address the need to prevent the co-mingling of wild waterfowl and domestic poultry.

10.6.12.3 Laying hens shall have access to an adequate number of nests according to recommended best management practices.

10.6.12.4 Surfaces to perch shall be provided for all laying hens at not less than 18 cm/hen. Perch area can include raised perches, nest rails and raised floors.

10.6.12.5 Birds shall have sufficient exit areas to ensure that all birds have ready access to the outdoors. Exits shall allow the passage of more than one bird at a time.

10.6.12.6 Housing for all poultry should provide an area of solid construction covered with litter material such as straw, wood shavings, sand or turf. Houses with slatted floors shall have 30% minimum of solid floor area with sufficient litter available for dust baths, scratching and foraging. A sufficiently large part of the floor area must be available to laying hens for the collection of droppings. Perches/higher sleeping areas of a size and number commensurate with the species and size of the group and of the birds and exit/entry holes of an adequate size must be provided.

10.6.12.7 Facilities shall permit poultry access to an adequate number of drinkers and feeders according to recommended best management practices.

10.6.12.8 Natural light shall be provided indoors for all poultry. If day length is artificially prolonged, the total duration of light shall not exceed 16 hours and shall be terminated by gradual reduction of light intensity.

- (a) Exceptions may occur for certain stages of production (e.g. arrival of chicks, turkey poults). Producers shall document periods of increased and decreased lighting periods due to stage of production.
- (b) In the case of laying hens, when natural day length is prolonged by artificial light, the competent authority shall prescribe maximum hours respective to species, geographical considerations and general health of the animals.

10.6.12.9 The maximum indoor and outdoor densities for poultry are as follows:

Stocking density	Layers	Broilers	Turkeys/Large birds
Indoors	6 birds/m ²	21 kg/m ²	26 kg/m ²
Outdoor runs	4 birds/m ²	21 kg/m ² *	17 kg/m ²

* Taking into consideration the requirements of 10.5.5 and 10.6.12.1 (b) (i).

10.6.12.10 For pasture-based operations and mobile units, the stocking density shall be no more than 2000 layers per hectare (800 per acre), 2500 broilers per hectare (1000 per acre) or 1300 large birds (turkeys/geese) per hectare (540 per acre) calculated using the total amount of land available for rotation.

10.6.12.11 For health reasons, buildings for poultry shall be emptied, cleaned and disinfected, and runs left empty to allow the vegetation to grow back between flocks.

10.7 Breeding

Breeding methods should be in compliance with the principles of organic farming taking into account:

- a) breeds and types of livestock that are suitable for organic raising under site-specific conditions within the local environment and production system and that are resistant to prevalent diseases and parasites;
- b) the preference for reproduction through natural methods, although artificial insemination may be used;
- c) that embryo transfer techniques or breeding techniques using genetic engineering or related technology shall not be used;
- d) not to use reproductive hormones to trigger and synchronize oestrus.

10.8 Physical alterations

Physical alterations are prohibited except when absolutely necessary to improve the health, welfare or hygiene of animals, or for identification or safety reasons. Physical alterations shall be undertaken in a manner that minimizes pain, stress and suffering, with consideration to the use of anaesthetics, sedatives and non-steroid anti-inflammatory analgesics (e.g. ketoprofen).

- (a) Beak trimming and de-toeing of birds, tail docking of pigs and trimming of needle teeth in piglets are only allowed when necessary to control problem behaviour that has a negative impact on the welfare of other animals. Operators shall document the measures taken to control or eliminate the behaviour.
- (b) Tail docking of cattle is prohibited except when necessary for veterinary treatment of injured animals.
- (c) The following procedures are allowed under the conditions specified above:

- (i) Castration of piglets, lambs and calves
 - (ii) Docking of lambs' tails
 - (iii) Branding and ear tagging
 - (iv) Dehorning and debudding (use of anaesthetics or sedatives is required for dairy calves).
- (d) Castration of piglets shall take place in the first two weeks of life. Castration of cull boars is prohibited.

10.9 Livestock feeds

10.9.1 Animals shall be fed 100 % organic feedstuff. Where the quantity or quality of commercially available organic feed is inadequate, the daily maximum percentage of non-organic feed shall be 40 %, calculated on a dry-matter basis.

10.9.2 For an implementation period to be set by the competent authority, livestock products will maintain their organic status providing feed, consisting of at least 85% for ruminants and 80% for non-ruminants and calculated on a dry matter basis, is from organic sources produced in compliance with this standard.

10.9.3 Notwithstanding the above, where an operator can demonstrate to the satisfaction of the official or officially recognized inspection/certification body that feedstuffs satisfying the requirement outlined in 10.9.1 are not available, as a result of, for example, unforeseen severe natural or manmade events or extreme climatic weather conditions, the inspection/certification body may allow a restricted percentage of feedstuffs not produced according to this standard to be fed for a limited time, providing it does not contain genetically engineered/modified organisms or products thereof. The competent authority shall set both the maximum percentage of non-organic feed allowed and any conditions relating to this derogation.

10.9.4 Livestock feed shall consist of substances that are necessary and essential for maintaining the animals' health, well-being and vitality and that meet the physiological and behavioural needs of the species in question. Herbivores shall have access to fresh fodder. Ruminants shall get fresh fodder daily through grazing or feeding. Where such fodder is not available, preserved fodder may be used.

10.9.5 To ensure a connection between plant production and animal husbandry, at least 60 % of feed shall come from the farm itself or be produced in cooperation with other organic farms.

10.9.6 Specific livestock rations should take into account:

- (a) For young mammals, the need for natural milk, preferably maternal, including colostrum within the first day of life;
- (b) For ruminants, that at least 60% of dry matter in daily rations consists of hay, fresh/dried fodder or silage;
- (c) For ruminant animals, when silage is fed, at least 15% of the total dry matter in daily rations shall consist of long-fibre forage (>10 cm stem length)
- c) That polygastric animals should be not fed silage exclusively;
- d) The need for cereals in the finishing/fattening phase of poultry;
- e) In addition to grain, the need for roughage, fresh or dried fodder or silage in the daily ration for pigs and poultry.

10.9.7 All livestock must have ample access to fresh water to maintain the full health and vigour of the livestock.

10.9.8 If substances are used as feedstuffs, nutritional elements, feed additives or processing aids in the preparation of feedstuffs, the competent authority shall establish a positive list/s of substances in compliance with the following criteria:

10.9.8.1 General criteria

- a) substances are permitted according to national legislation on animal feeding;
- b) substances are necessary/essential to maintain animal health, animal welfare and vitality; and
- c) such substances:
 - i) contribute to an appropriate diet fulfilling the physiological and behavioural needs of the species concerned; and
 - ii) do not contain genetically engineered/modified organisms and products thereof; and
 - iii) are primarily of plant, mineral or animal origin.

10.9.8.2 Specific criteria for feedstuffs and nutritional elements

- a) feedstuffs of plant origin from non-organic sources can only be used, under the conditions of 10.9.2 and 10.9.3, if they are produced or prepared without the use of chemical solvents or chemical treatment;
- b) feedstuffs of mineral origin, trace elements, vitamins, or provitamins can only be used if they are of natural origin. In case of shortage of these substances, or in exceptional circumstances, chemically well-defined analogic substances may be used;
- c) feedstuffs of animal origin, with the exception of milk and milk products, fish, other marine animals and products derived therefrom should generally not be used or, as provided by national legislation. In any case, the feeding of mammalian material to ruminants is not permitted with the exception of milk and milk products;
- d) synthetic nitrogen or non-protein nitrogen compounds shall not be used.

10.9.8.3 Specific criteria for additives and processing aids

- a) binders, anti-caking agents, emulsifiers, stabilizers, thickeners, surfactants, coagulants: only natural sources are allowed;
- b) antioxidants: only natural sources are allowed;
- c) preservatives: only natural acids are allowed;
- d) colouring agents (including pigments), flavours and appetite stimulants: only natural sources are allowed;
- e) probiotics, enzymes and micro-organisms are allowed.

10.9.8.4 The following products shall not be included in the feed:

- a) meat, bone and other abattoir waste products to ruminants
- b) chicken manure or other animal manure to ruminants
- c) Feeds subjected to solvent extraction (e.g., hexane) or the addition of other chemical agents

- d) feed and feed additives, including amino acids and feed supplements that contain substances not in accordance with Annex B
- e) urea and other synthetic nitrogen compounds
- f) synthetic growth promoters or stimulants
- g) antibiotics, coccidiostats, medicinal substances, growth promoters or any other substance intended to stimulate growth or production shall not be used in animal feeding
- h) synthetic appetizers
- i) artificial colouring agents
- j) genetically engineered organisms or products thereof

10.9.8.5 Feed preservatives may not be used except for

- a) plant-based products,
- b) by-products from the food industry (e.g., molasses),
- c) bacteria, fungi and enzymes,

10.9.8.6 Silage additives and processing aids may not be derived from genetically engineered/modified organisms or products thereof, and may be comprised of only:

- a) sea salt;
- b) coarse rock salt;
- c) yeasts;
- d) enzymes;
- e) whey;
- f) sugar; or sugar products such as molasses;
- g) honey;
- h) lactic, acetic, formic and propionic bacteria, or their natural acid product when the weather conditions do not allow for adequate fermentation, and with approval of the competent authority.

10.9.8.7 Animals may be fed vitamins, trace elements and supplements from natural sources. Synthetic vitamins, minerals and supplements may be used where natural sources are lacking in quantity or quality.

10.9.8.8 Young stock from mammals shall be raised on maternal milk or organic whole milk from their own species. Young animals shall be allowed to suckle.

Where organic whole milk is not available, conventional whole milk shall be used. Milk replacements may be used only in emergencies and shall not contain ingredients mentioned in 10.9.8.4.

Animals shall be weaned only after a minimum time that takes into account the natural behaviour and physical needs of the animal.

10.10 Livestock healthcare management

10.10.1 Disease prevention in organic livestock production shall be based on the following principles:

- (a) the choice of appropriate breeds or strains of animals as detailed in 10.2.1;
- (b) the provision of good quality organic feed and feed rations sufficient to meet nutritional requirements, including vitamins, minerals, protein, fatty acids, energy sources and fibre (ruminants), together with regular exercise and access to pasture and/or open-air runs, having the effect of encouraging the natural immunological defence of the animal;
- (c) the application of animal husbandry practices appropriate to the requirements of each species, encouraging strong resistance to disease and the prevention of infections;
- (d) ensuring an appropriate density of livestock, thus avoiding overstocking and any resulting animal health problems;
- (e) the establishment of appropriate housing, pasture conditions, space allowance and sanitation practices, to minimize crowding and the occurrence and spread of diseases and parasites;
- (f) the provision of conditions that allow for exercise, freedom of movement, and a reduction in stress appropriate to the species;
- (g) the provision of prompt treatment for animals with detectable disease, lesions, lameness, injury and other physical ailments;
- (h) the administration of vaccines in accordance with this standard when it has been documented that the targeted diseases are communicable to livestock on the enterprise and cannot be combatted by other means.

10.10.2 If an animal becomes sick or injured despite preventative measures, it shall be treated promptly and adequately, if necessary in isolation and suitable housing. The operator shall not withhold medication from sick or injured animals, even if the use of such medication would cause the animal to lose its organic status. Shipping of diseased livestock to slaughter for human consumption is prohibited. Sick and medicated animals shall be quarantined from healthy livestock.

10.10.3 Products from sick animals or those undergoing treatment with restricted substances shall not be organic or fed to organic livestock.

10.10.4 The use of veterinary medicinal products in organic farming shall comply with the following principles:

- (a) If no alternative treatment or management practice exists, the use of veterinary biologics, including vaccines, the use of parasiticides or the therapeutic use of synthetic medications may be administered provided that such medications are allowed, in accordance with this standard, or are required by law.
- (b) Phytotherapeutic (i.e. herbal or botanical substances excluding antibiotics), homeopathic or similar products shall be used as the first option in preference to chemical allopathic veterinary drugs or antibiotics, provided that their therapeutic effect is effective for the species and the condition for which the treatment is intended.
- (c) If the use of the products in (a) and (b) is unlikely to be effective in combatting illness or injury, chemical allopathic drugs (not listed in Annex B) may be administered under veterinary supervision. Some restrictions apply when meat animals are treated (see 10.10.5, 10.10.6 (e) and 10.10.7).
- (d) When veterinary drugs other than those with specific requirements listed in this standard, are used, a withholding period equivalent to double the label requirement or 14 days, whichever is longer, shall be observed before the products from treated livestock can be considered organic.
- (e) Antibiotic treatment of dairy animals is permitted in emergencies under the following conditions:

CD-ARS 751:2012(E)

- (i) The operator shall have written instructions from a veterinarian indicating the product and the treatment method used.
- (ii) Such treatment shall result in a milk withdrawal time of at least 30 days or two times the specific medication's withdrawal period, whichever is longer.
- (iii) Antibiotic use shall be documented in herd health records.
- (iv) Dairy animals shall undergo only two treatments (of combined parasiticides and antibiotics) per year. Dairy animals that require more than two treatments shall undergo a 12-month transition period.
- (v) Dairy animals with chronic conditions requiring repeated use of this practice shall be removed from the herd.

10.10.5 Hormonal treatment shall only be used for therapeutic reasons and under veterinary supervision. The meat from animals so treated shall not be organic meat unless the treatment is permitted by Annex B.

10.10.6 The operator of an organic livestock operation shall not administer

- (a) veterinary drugs, other than vaccines, in the absence of illness, with the exception of anaesthetics and analgesics used in permitted physical alterations;
- (b) synthetic compounds to stimulate or retard growth or production, including hormones for growth promotion;
- (c) synthetic parasiticides to meat animals, except as provided in 10.10.7;
- (d) antibiotics to meat animals and birds for egg production;
- (e) chemical allopathic veterinary drugs (e.g. pharmaceuticals, antibiotics, hormones and steroids) for preventive treatments.

10.10.7 Organic livestock operations shall have a comprehensive plan to minimize parasite problems in livestock.

- (a) The plan will include preventive measures such as pasture management and faecal monitoring, as well as emergency measures in the event of a parasite outbreak.
- (b) By way of derogation, when preventive measures fail (because of climatic conditions or other uncontrollable factors), the operator may use parasiticides not listed in Annex B, provided that
 - (i) observation of the animal or faecal samples, as appropriate for the species, indicate the livestock is infected with parasites;
 - (ii) the operator has received written instructions from a veterinarian indicating the product and method for parasite control that shall be used;
 - (iii) withdrawal times shall be twice the label requirement or 14 days whichever is longer;
 - (iv) there shall be only one treatment for slaughter animals under a year old and a maximum of two treatments for older slaughter animals. Slaughter animals that require further treatment will lose organic status;
 - (v) dairy animals requiring more than two treatments per year (of combined antibiotics and parasiticides) will lose organic status and shall go through a 12-month transition. These dairy animals shall never be organic for slaughter purposes;
 - (vi) under this derogation, a dam may be treated during gestation;

- (vii) treatment of a poultry flock is allowed. Laying hens requiring more than one treatment of parasiticides per 12 month period will lose organic status;
- (viii) the operator shall provide a written action plan (including timing), describing how they will amend their parasite control plan, to avoid similar emergencies.

10.10.8 Except as provided in 10.10.7, no breeding livestock or poultry treated with a parasiticide or veterinary drug (not listed in Annex B) shall be considered as an organic meat animal.

10.10.9 Injured, diseased or sick animals shall receive individual treatment designed to minimize pain and suffering, which may include euthanasia.

10.10.10 Forced moulting of poultry is prohibited.

10.11 Transport and slaughter

10.11.1 The transport of living stock should be managed in a calm and gentle way and in a manner which avoids mental strain or stress, injury and suffering. In transporting livestock, the use of electric stimulation or allopathic tranquilizers is not permitted.

10.11.2 Livestock shall be provided with conditions that minimise stress and other adverse effects of:

- (a) hunger and thirst,
- (b) extreme temperatures or relative humidity,
- (c) mixing different groups, sexes, age, and health status.

10.11.3 Efforts shall be made to transport animals directly from the farm to their final destination.

10.11.4 The duration of transportation shall be as short as possible.

10.11.5 Animals too ill to be transported shall be suitably euthanized, without cruelty.

10.11.6 The slaughter of livestock should be undertaken in a manner which minimizes stress and suffering, and in accordance with national rules.

10.12 Manure management

10.12.1 Manure management practices used to maintain any area in which livestock are housed, penned or pastured should be implemented in a manner that:

- a) minimizes soil and water degradation;
- b) does not significantly contribute to contamination of water by nitrates and pathogenic bacteria;
- c) optimizes recycling of nutrients; and
- d) does not include burning or any practice inconsistent with organic practices.

10.12.2 All manure storage and handling facilities, including composting facilities should be designed, constructed and operated to prevent contamination of ground and/or surface water.

10.12.3 Manure application rates should be at levels that do not contribute to ground and/or surface water contamination. The competent authority may establish maximum application rates for manure or stocking densities. The timing of application and application methods should not increase the potential for run-off into ponds, rivers and streams.

10.13 Record keeping and identification

The operator shall maintain detailed and up-to-date records.

11 Apiculture (bee-keeping)

11.1 General principles

11.1.1 An operator may introduce and manage bees on the enterprise for production benefits, such as the enhancement of the environment, agriculture and forestry production through the pollination action of bees. If managed as a livestock species yielding organic apiculture products (e.g. honey, pollen, propolis, royal jelly, beeswax and bee venom), the operator shall manage bees in accordance with this standard.

11.1.2 The treatment and management of hives should respect the principles of organic farming.

11.1.3 Collection areas must be large enough to provide adequate and sufficient nutrition and access to water.

11.1.4 The sources of natural nectar, honeydew and pollen shall consist essentially of organically produced plants and/or spontaneous (wild) vegetation.

11.1.5 The health of bees should be based on prevention such as adequate selection of breeds, favourable environment, balanced diet and appropriate husbandry practices.

11.1.6 The hives shall consist basically of natural materials presenting no risk of contamination to the environment or the bee products.

11.1.7 When bees are placed in wild areas, consideration should be given to the indigenous insect population.

11.2 Location and construction

11.2.1 Hives shall be situated in organically managed fields and/or wild natural areas complying with the requirements of this standard.

11.2.2 The official certification body or authority shall approve the areas which ensure appropriate sources of honeydew, nectar and pollen based on information provided by the operators and/or through the process of inspection.

11.2.3 The official certification body or authority may designate a specific radius from the hive within which the bees have access to adequate and sufficient nutrition that meets the requirements of this standard. Owing to the long distances that foraging bees may travel, it is not possible to limit foraging activities to organic floral sources. While placement of colonies on an organic enterprise, in accordance with this standard, is preferable, hives may be located in other foraging sites, provided the operator can demonstrate that the area surrounding the foraging site is not treated or exposed to substances not in accordance with this standard.

11.2.4 The certification body or authority shall identify zones where hives, that meet these requirements, should not be placed due to potential sources of contamination with prohibited substances, genetically modified organisms or environmental contaminants.

11.2.5 Hives shall be constructed of natural materials, including wood and metal and materials presenting no risk of toxic effects to the bees or the bee products. Pressure-treated lumber or particleboard, wood preservatives and lumber treated with substances not in accordance with this standard shall not be used in hive construction or maintenance.

11.2.6 Exterior surfaces of the hive shall be painted only with non-lead-based paints.

11.2.7 Organic wax shall be used for starter combs. Where organic wax is not available, conventional wax may be used. The conventional wax shall not be contaminated with synthetic pesticides. Plastic foundation, if dipped in organic beeswax, is permitted.

11.3 Conversion and brought-in bees and swarms

11.3.1 Bee colonies may be converted to organic production. The conversion period for a colony is one honey harvest cycle.

11.3.2 Introduced bees shall come from organic production units where available or otherwise from traditional bee-keeping. However, replacement bees (e.g. package bees or nucleus colonies) may be from organic sources or from non-organic sources provided that replacement bees are managed in accordance with this standard for at least 60 days before the removal of organic apiculture products from the hive.

11.3.3 In the choice of breeds, account must be taken of the capacity of bees to adapt to local conditions, their vitality and their resistance to disease.

11.3.4 If the wax has been contaminated with pesticides it shall be replaced by organic wax at the start of the conversion period.

11.3.5 During the conversion period the wax must be replaced by organically produced wax. In cases where all the wax cannot be replaced during a one-year period, the certification body or authority may extend the conversion period. By way of derogation when organically produced beeswax is not available, wax from sources not complying with this standard may be authorized by the certification body or authority, provided it comes from the cap or from areas where no prohibited materials have been used.

11.3.6 Where no prohibited products have been previously used in the hive, replacement of wax is not necessary.

11.3.7 Colonies and hives shall not be rotated between organic and non-organic management systems, except for colonies that have undergone a one-year transition after isolation and antibiotic treatment as described in 11.5.3.

11.4 Forage and feeding

11.4.1 The operator shall provide bees with adequate forage and water that are managed in accordance with this standard. The honeydew, nectar and pollen shall mainly come from plants that are either wild or that fulfil organic crop requirements.

11.4.2 Organic honey and pollen shall be the major foodstuff for adult bees, and maintained in adequate supplies in the colony, including leaving colonies, with reserves of honey and pollen sufficient for the colony to survive the dormancy period.

(a) The feeding of colonies can be undertaken to overcome temporary feed shortages owing to climatic or other exceptional circumstances. Feeding shall be carried out only between the last honey harvest and 15 days before the start of the next nectar or honeydew flow-period.

(b) In such cases, organically produced honey or sugars shall be used. Non-organic refined sugars may be used when the health of the colony cannot be maintained with the use of organically produced honey or sugars.

11.4.3 Organically and non-organically produced honey or sugars shall not be provided less than 30 days before the harvest of honey.

11.5 Health of bees

11.5.1 The health of bee colonies shall be maintained by good management practices, with emphasis on disease prevention through breed selection and hive management. This includes:

- a) the use of breeds that adapt well to local conditions;
- b) renewal of queen bees, where necessary;
- c) regular cleaning and disinfecting of equipment;
- d) regular renewal of beeswax;
- e) availability in hives of sufficient pollen and honey;
- f) placing of hives so that the temperature is favourable to the bees;
- g) systematic inspection of hives to detect any anomalies;
- h) systematic control of male broods in the hive;
- i) disinfection, isolation or destruction of contaminated hives and materials.

11.5.2 For pest and disease control, the following may be used:

- a) lactic, oxalic, acetic acid;
- b) formic acid;
- c) sulphur;
- d) natural etheric oils (e.g., menthol, eucalyptol, camphor, thymon, lemongrass oil);
- e) *Bacillus thuringiensis*;
- f) steam and direct flame;
- g) glycerol;
- h) phytotherapeutic treatment;
- i) wood ash;
- j) management methods or modified equipment to control pests and diseases.

11.5.3 Where preventative measures fail, veterinary medicinal products may be used provided that:

- (a) preference is given to phytotherapeutic and homeopathic treatment, and
- (b) if allopathic chemically synthesized medicinal products are used, the bee products must not be sold as organic. Treated hives must be placed in isolation and undergo a conversion period of one year. Before such treatments, the hive shall be removed from the foraging area and taken out of organic production to prevent the spread of antibiotics within the apiary. All the wax must be replaced with wax which is in accordance with this standard, and
- (c) every veterinary treatment must be clearly documented.

11.5.4 Used engine oil shall not be used for pest control.

11.5.5 The practice of destroying the male brood is permitted only to contain infestation with *Varroa jacobsoni* (varroa mites).

11.6 Management and harvest

11.6.1 Hives shall be individually identifiable (marked) and shall be monitored regularly (i.e. at one- to two-week intervals, depending upon the colony, weather conditions and time of year).

11.6.2 Records shall be maintained in accordance with this standard that document all apiary management activities, including removal of supers and extraction of honey.

11.6.3 The destruction of bees in the combs as a method of harvesting of bee products is prohibited. Bees shall be removed from hives with bee escape-boards, shaking, brushing and forced-air blowers.

11.6.4 Mutilations, such as clipping of the wings of queen bees, are prohibited.

11.6.5 The use of chemical synthetic repellents is prohibited during honey extraction operations.

11.6.6 Smoking should be kept to a minimum. Acceptable smoking materials should be natural or from materials that meet the requirements of this standard.

11.6.7 It is recommended that temperatures are maintained as low as possible during the extraction and processing of products derived from beekeeping.

11.6.8 At the harvest, colonies shall be left with reserves of honey, brood and pollen sufficient for the survival of the colony.

11.7 Extraction, processing and storage

11.7.1 Extraction of honey from a brood comb with live brood is prohibited.

11.7.2 The operator shall preserve and protect the quality and organic integrity of the honey, produced in accordance with this standard, once it is harvested.

11.7.3 Surfaces in direct contact with honey shall be constructed of food-grade materials or coated with beeswax.

11.7.4 The heating of honey for extraction shall not exceed 35 °C, and the decrystallization temperature shall not exceed 47 °C.

11.7.5 Gravitational settling shall be used to remove debris from extracted honey; sieves are permitted to remove residual debris.

11.7.6 Honey shall be packaged in airtight containers.

11.7.7 Cleaning products and insect repellents shall be limited to substances listed in Annex B.

11.7.8 Organic honey products shall not be produced from a hive or colony treated with substances prohibited by Annex C.

11.8 Record keeping

The operator shall maintain detailed and up-to-date records. Maps should be maintained depicting the location of all hives.

12 Wild collection

12.1 The collection of edible plants and parts thereof, growing naturally in natural areas, forests and agricultural areas, shall be considered an organic production method provided that:

- (a) the products are from a clearly defined collection area that is subject to the inspection/certification measures set out in Clause 7 of these guidelines and the harvest area shall be at an appropriate distance from conventional farms and sources of contamination;
- (b) those areas have received no treatments with synthetic pesticides and other substances not allowed by this standard and other than those referred to in Annex B for a period of three years before the collection;

- (c) the collection shall not be at a rate that exceeds the sustainable yield of the species or the ecosystem, and it shall not threaten the existence of plant, fungal, or animal species, including those not directly exploited;
- (d) the products are from an operator managing the harvesting or gathering of the products, who is clearly identified and familiar with the collection area.

12.2 The operator shall

- (a) draw up a detailed description of harvested areas and the history of compliance with this standard over the past three years;
- (b) draw up a description of harvest methods used;
- (c) propose protection measures for wild species that will prevent disturbance of the environment.

12.3 Wild products can only be deemed organic, in accordance with this standard, if they are harvested in relatively undisturbed or stable natural settings. A wild plant shall be harvested or picked in a way that promotes its growth and production and that does not destroy the environment.

12.4 The production zone for wild crops shall be isolated from contact with substances prohibited by Annex C by a clearly defined buffer zone (9.2.5 applies). The harvest sites shall be situated more than one (1) kilometer from potential contamination sources, such as golf courses, dumps, sanitary landfill sites and industrial complexes that could be a source of environmental pollution.

12.5 The operator that manages the harvest of wild crop products shall maintain records.

13 Handling, storage and processing

13.1 Integrity

13.1.1 The major objective of an organic system is to maintain the inherent organic qualities of the product from production, preparation, storage, handling and labelling, to point of sale. Throughout the preparation and handling, the integrity of organic products is maintained by using techniques appropriate to the specific ingredients and limiting the degree of refinement while minimizing the use of food additives and processing aids.

13.1.2 All organic products shall be clearly identified as organic. Throughout the entire process of storage and transportation, the products shall be stored and transported in a way that prevents their contact or mixing with non-organic products.

13.2 Ingredients

13.2.1 All ingredients used in organic products shall be organically produced where commercially available in sufficient quality and quantity.

NOTE The labelling requirements in Clause 14 apply.

Water and edible salt may be used as ingredients in the production of organic products and are not included in the percentage calculations of organic ingredients.

13.3 Technologies

13.3.1 Technologies used to process and preserve organic products shall be biological, physical or mechanical. Ionizing radiation shall not be used on organic products for the purpose of pest control, food preservation, elimination of pathogens or sanitation.

13.3.2 Only water, ethanol, plant and animal oils, vinegar, carbon dioxide, and nitrogen may be used as solvents for extraction. Ethylene may be used for ripening of kiwifruit and bananas.

13.3.3 Equipment shall not contain substances that may negatively affect the product.

13.3.4 Controlled atmosphere may be used for storage.

13.4 Additives and processing aids

13.4.1 Processing methods should be mechanical, physical or biological (such as fermentation and smoking) and minimize the use of non-agricultural ingredients and additives as listed in Table D.1 and Table D.2.

13.4.2 Preparations of enzymes and micro-organisms (with the exception of genetically engineered micro-organisms and their derivatives) may be used in food processing.

13.4.3 Synthetic substances (including nature-identical colourings, flavourings, and taste-enhancing) shall not be used.

13.4.4 Food additives and processing aids in accordance with IFOAM Basic Standards or CAC/GL 32 may be used. Annex D contains the food additives and processing additives that were accepted at the time of publication of this standard. If the substances listed in Annex D can be found in nature, natural sources are preferred. Substances of organic origin are preferred.

13.5 Food fortification

Synthetically produced minerals (including trace substances), vitamins, amino acids and other nitrogen compounds may be used for food fortification purposes only where legally required or in cases in which dietary or nutritional deficiency can be demonstrated.

13.6 Packaging materials

13.6.1 Packaging materials should preferably be chosen from bio-degradable, recycled or recyclable sources.

13.6.2 Packaging materials shall not contaminate the organic product.

13.6.3 Organic products shall not be packaged in materials that have been used for or treated with chemical fertilizers or pesticides or other substances that may compromise the organic integrity of the product.

13.6.4 Environmentally adapted packaging shall be preferred. Polyvinyl chloride (PVC) and other chlorine-based plastics shall be avoided if possible.

13.7 Pest management

13.7.1 Pest-management measures shall be established and maintained to ensure that areas used for the storing, handling and processing of organic products are effectively protected against pests.

13.7.2 Management of pests shall be achieved mainly by means of scrupulous hygiene, cleaning and sanitation. Pest control measures within storage areas or transport containers may include physical barriers or other treatments such as sound, ultra-sound, light, ultra-violet light, traps (pheromone traps and static bait traps) controlled temperature, controlled atmosphere (carbon dioxide, oxygen, nitrogen), and diatomaceous earth.

13.7.3 For pest management and control the following measures, in order of preference, should be used:

- a) Preventative methods, such as disruption and elimination of habitat and access to facilities by pest organisms, should be the primary methodology of pest management;

CD-ARS 751:2012(E)

- b) If preventative methods are inadequate, the first choice for pest control should be mechanical/physical and biological methods;
- c) If mechanical/physical and biological methods are inadequate for pest control, pesticidal substances appearing in Table B.2 (or other substances allowed for use by a competent authority in accordance with Clause 6.2) may be used provided that they are accepted for use in handling, storage, transportation or processing facilities by the competent authority and so that contact with organic products is prevented.

13.7.4 If the methods listed above are unsuccessful, conventional pest control (e.g., fumigations) may be used, with maximum care, under the following conditions:

- a) Ethylene oxide, methyl bromide, aluminium phosphide or ionizing radiation may not be used.
- b) Organic products shall be moved out of the treated area.
- c) The operator shall take precautions to prevent contamination and include measures to decontaminate the equipment or facilities.
- d) The treatment shall be carried out under the supervision of a qualified person or organization.
- e) Records of date, substance and area treated shall be kept of all pest-control and fumigation measures taken.

13.7.5 Use of pesticides not listed in Annex B for post-harvest or quarantine purposes should not be permitted on products prepared in accordance with this standard and would cause organically produced foods to lose their organic status.

13.8 Storage and transport

13.8.1 Product integrity should be maintained during any storage and transportation and handling by use of the following precautions:

- a) Organic products must be protected at all times from co-mingling with non-organic products; and
- b) Organic products must be protected at all times from contact with materials and substances not permitted for use in organic farming and handling.

13.8.2 Where only part of the unit is certified, other product not covered by these guidelines should be stored and handled separately and both types of products should be clearly identified.

13.8.3 Bulk stores for organic product should be separate from conventional product stores and clearly labelled to that effect.

13.8.4 Storage areas and transport containers for organic product should be cleaned using methods and materials permitted in organic production. Measures should be taken to prevent possible contamination from any pesticide or other treatment not listed in Annex B before using a storage area or container that is not dedicated solely to organic products.

13.9 Hygiene

Organic products shall be produced, prepared and handled in accordance with the provisions of appropriate sections of ARS 53.

14 Labelling and claims

14.1 General provisions

14.1.1 Organic products shall be labelled in accordance with ARS 56.

14.1.2 The labelling and claims of a product specified in Clause 1.1(a) may refer to organic production methods only where:

- a) such indications show clearly that they relate to a method of agricultural production;
- b) the product was produced in accordance with the requirements of Clause 5 or imported under the requirements laid down in Clause 8;
- c) the product was produced or imported by an operator who is subject to the inspection measures laid down in Clause 7, and
- d) the labelling refers to the name and/or code number of the officially recognized inspection or certification body to which the operator who has carried out the production or the most recent processing operation is subject.

14.1.3 The labelling and claims of a product specified in Clause 1.1(b) may refer to organic production methods only where:

- a) such indication show clearly that they relate to a method of agricultural production and are linked with the name of the agricultural product in question, unless such indication is clearly given in the list of ingredients;
- b) all the ingredients of agricultural origin of the product are, or are derived from, products obtained in accordance with the requirements of Clause 5, or imported under the arrangements laid down in Clause 8;
- c) the product should not contain any ingredient of non-agricultural origin not listed in Table D.1;
- d) the same ingredients shall not be derived from an organic and non-organic origin;
- e) the product or its ingredients have not been subjected during preparation to treatments involving the use of ionizing radiation or substances not listed in Table D.2;
- f) the product was prepared or imported by an operator subject to the regular inspection system as set out in Clause 7 of this standard; and
- g) the labelling refers to the name and/or the code number of the official or officially recognized certification body or authority to which the operator who has carried out the most recent preparation operation is subject.

14.1.4 By way of derogation from 14.1.3(b),

- a) certain ingredients of agricultural origin not satisfying the requirement in that paragraph may be used, within the limit of maximum level of 5% m/m of the total ingredients excluding salt and water in the final product, in the preparation of products as referred to in Clause 1.1(b);
- b) where such ingredients of agricultural origin are not available, or in sufficient quantity, in accordance with the requirements of Clause 5 of this standard;

14.2 A raw or processed product labelled as “organic” shall contain, by weight, excluding water and edible salt, no less than 95 % organic ingredients. The remaining ingredients may include non-organic ingredients fulfilling the relevant parts of this standard.

14.3 A product labelled as “made with organic ingredient(s)” shall contain, by weight, excluding water and edible salt, at least 70 % organic ingredients. The remaining ingredients may include non-organic ingredients fulfilling the relevant parts of this standard.

14.4 For a product in which less than 70 % of the ingredients are organic, the word *organic* may be stated in the ingredient panel or in conjunction with the organic ingredient.

CD-ARS 751:2012(E)

14.5 All ingredients of a multi-ingredient product shall be listed on the product label in order of their weight percentage. It shall be apparent which ingredients are of organic origin and which are not. All additives shall be listed with their full name. Where herbs and/or spices constitute less than 2 % of the total weight of the product, they may be listed as “spices” or “herbs” without stating the percentage.

14.6 The name and contact address of the responsible operator shall appear on the labelling for products in their final consumer packaging.

14.7 Labelling shall follow the applicable legislation.

14.8 A statement that the product is “produced according to the African Organic Standard” may be made on the labels.

14.9 Labelling of products in transition/conversion to organic

Products of farms in transition to organic production methods may only be labelled as “transition to organic” after 12 months of production using organic methods providing that:

- a) the requirements referred to in 14.1.2 and 14.1.3 are fully satisfied;
- b) the indications referring to transition/conversion do not mislead the purchaser of the product regarding its difference from products obtained from farms and/or farm units which have fully completed the conversion period;
- c) such indication take the form of words, such as “product under conversion to organic farming”, or similar words or phrase accepted by the competent authority of the country where the product is marketed, and must appear in a colour, size and style of lettering which is not more prominent than the sales description of the product;
- d) foods composed of a single ingredient may be labelled as “transition to organic” on the principal display panel;
- e) the labelling refers to the name and/or the code number of the official or officially approved certification body or authority to which the operator who has carried out the most recent preparation is subject.

14.10 Labelling of non-retail containers

The labelling of non-retail containers of product specified in Clause 1.1 shall have the following information, without prejudice to any other indications required by law:

- a) the name and address of the person responsible for the production or preparation of the product;
- b) the name of the product; and
- c) that the product is of organic status.

Annex A (informative)

IFOAM principles of organic agriculture

A.1 Preamble

These Principles are the roots from which organic agriculture grows and develops. They express the contribution that organic agriculture can make to the world and a vision to improve all agriculture in a global context.

Agriculture is one of humankind's most basic activities because all people need to nourish themselves daily. History, culture and community values are embedded in agriculture. The Principles apply to agriculture in the broadest sense, including the way people tend soils, water, plants and animals in order to produce, prepare and distribute food and other goods. They concern the way people interact with living landscapes, relate to one another and shape the legacy of future generations.

The Principles of Organic Agriculture serve to inspire the organic movement in its full diversity. They guide IFOAMs development of positions, programs and standards. Furthermore, they are presented with a vision of their world-wide adoption.

Organic agriculture is based on:

- The Principle of Health
- The Principle of Ecology
- The Principle of Fairness
- The Principle of Care

Each principle is articulated through a statement followed by an explanation. The principles are to be used as a whole. They are composed as ethical principles to inspire action.

A.2 The principle of health

Organic agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

This principle points out that the health of individuals and communities cannot be separated from the health of ecosystems — healthy soils produce healthy crops that foster the health of animals and people.

Health is the wholeness and integrity of living systems. It is not simply the absence of illness, but the maintenance of physical, mental, social and ecological well-being. Immunity, resilience and regeneration are key characteristics of health.

The role of organic agriculture, whether in farming, processing, distribution, or consumption, is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings. In particular, organic agriculture is intended to produce high quality, nutritious food that contributes to preventive health care and well-being. In view of this it should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects.

A.3 The principle of ecology

Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

This principle roots organic agriculture within living ecological systems. It states that production is to be based on ecological processes, and recycling. Nourishment and well-being are achieved through the ecology of the specific production environment. For example, in the case of crops this is the living soil; for animals it is the farm ecosystem; for fish and marine organisms, the aquatic environment.

Organic farming, pastoral and wild harvest systems should fit the cycles and ecological balances in nature. These cycles are universal but their operation is site-specific. Organic management must be adapted to local conditions, ecology, culture and scale. Inputs should be reduced by reuse, recycling and efficient management of materials and energy in order to maintain and improve environmental quality and conserve resources.

Organic agriculture should attain ecological balance through the design of farming systems, establishment of habitats and maintenance of genetic and agricultural diversity. Those who produce, process, trade, or consume organic products should protect and benefit the common environment including landscapes, climate, habitats, biodiversity, air and water.

A.4 The principle of fairness

Organic agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.

Fairness is characterized by equity, respect, justice and stewardship of the shared world, both among people and in their relations to other living beings.

This principle emphasizes that those involved in organic agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all parties – farmers, workers, processors, distributors, traders and consumers. Organic agriculture should provide everyone involved with a good quality of life, and contribute to food sovereignty and reduction of poverty. It aims to produce a sufficient supply of good quality food and other products.

This principle insists that animals should be provided with the conditions and opportunities of life that accord with their physiology, natural behaviour and well-being.

Natural and environmental resources that are used for production and consumption should be managed in a way that is socially and ecologically just and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and account for real environmental and social costs.

A.5 The principle of care

Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

Organic agriculture is a living and dynamic system that responds to internal and external demands and conditions. Practitioners of organic agriculture can enhance efficiency and increase productivity, but this should not be at the risk of jeopardizing health and well-being. Consequently, new technologies need to be assessed and existing methods reviewed. Given the incomplete understanding of ecosystems and agriculture, care must be taken.

This principle states that precaution and responsibility are the key concerns in management, development and technology choices in organic agriculture. Science is necessary to ensure that organic agriculture is healthy, safe and ecologically sound.

However, scientific knowledge alone is not sufficient. Practical experience, accumulated wisdom and traditional and indigenous knowledge offer valid solutions, tested by time. Organic agriculture should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering. Decisions should reflect the values and needs of all who might be affected, through transparent and participatory processes.

Annex B (informative)

Permitted substances for the production of organic foods

B.1 The list is indicative, i.e., there may be other substances that may be used in organic production according to this standard as long as they follow the criteria in the IFOAM Basic Standards or CAC/GL 32.

Table B.1 — Substances for use in soil fertilizing and soil conditioning

Description, compositional requirements of substance	Conditions for use
i) Plant and animal origin	
Agar	For use in initial mushroom spawn production
Alfalfa meal and pellets	Use organic alfalfa unless commercially unavailable. Ensure non-organic alfalfa is not a product of genetic engineering.
Algae; aquatic plant products	Natural (non-synthetic) extracts are allowed. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. Of the two products, potassium hydroxide is the preferred choice; the manufacturer shall prove the need to use sodium hydroxide. Aquatic plant products are prohibited if they contain other synthetic preservatives, such as formaldehyde, or are fortified with other prohibited plant nutrients.
Amino acids, non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Non-synthetic amino acids may be used as plant growth regulators or chelating agents.
Farmyard and poultry manure, slurry, and urine	
Guano, bat or bird	Shall be decomposed, dried deposits from wild bats or birds. Domesticated fowl excrement is considered <i>manure</i> , not <i>guano</i> . See Compost for the definition of <i>compost</i> .
Source-separated human excrement from separated sources which are monitored for contamination	Not to be directly applied on edible parts. Not to be applied later than six weeks before harvest.
Ash	Ash from plant and animal sources only. Ash from burning minerals, manure or prohibited substances is prohibited. Wood-stove ash is allowed only if not contaminated with coloured paper, plastics or other synthetic substances. Document non-contamination of ash obtained from off-farm sources including arsenic, cadmium, chromium and lead. (Manure ash is prohibited because burning manure wastes organic matter and nutrients.)
Vermicastings; worm castings	Allowed if made from organic manure. Compost made from non-organic manure by worms shall be demonstrated to be free of antibiotics.
Blood meal, meat meal, bone, bone meal	Allowed only if sterilized.

Description, compositional requirements of substance	Conditions for use
Hoof and horn meal, feather meal, fish and fish products, wool, fur, hair, dairy products	
Biodegradable processing by-products, plant or animal origin (e.g., by-products of food, feed, oilseed, brewery, distillery or textile processing)	
Crop and vegetable residues, mulch, green manure, cover crops (leguminous crops such as lablab and mucona), straw	
Wood, bark, sawdust, wood shavings, wood ash, wood charcoal	From untreated and unpainted wood only. Shall be free of prohibited substances. Excessive applications of ash can cause pH and nutrient imbalances. Natural substances from plant and animals sources only, and those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment. Ash from burning minerals, manure or prohibited substances is prohibited.
Seaweed and seaweed products	Aquatic plant products are prohibited if they contain other synthetic preservatives, such as formaldehyde, or are fortified with other prohibited plant nutrients. See also Aquatic plant products.
Peat (prohibited for soil conditioning)	Excluding synthetic additives; only for inclusion in potting mixes
Plant preparations and extracts	
Compost made from ingredients listed in this annex, spent mushroom waste, humus from worms and insects, urban composts from separated sources which are monitored for contamination	
Vermiculite	
Feather meal	If composed of feather meal only or if unadulterated with non-allowed substances.
Fish farm wastes	Shall be composted.
Fulvic acid	Dilute neutral to acidic extracts of humates.
Fish products; Fish meal, powder; Fish hydrolysate Fish emulsions or solubles	Natural substances or those derived from natural substances without the addition of chemically synthesized substances or chemical treatment except that liquid fish products as soil and plant amendments may be pH adjusted with (in preferential order) organic vinegar, organic citric acid or phosphoric acid. The amount of acid used shall not exceed the minimum needed to reach pH 3.5. Fish products are prohibited if they contain other synthetic preservatives or are fortified with prohibited plant nutrients.
Leaf mould	
Milk	Shall not contain prohibited substances.
Molasses	Shall be organic molasses unless not commercially available.
Mulch	Non-organic forms of straw, leaves, grass clippings or hay shall be free of pesticides and other contaminants. Wood chips and sawdust shall be from untreated wood. Organic matter in the form of plant residues from organic sources is allowed for mulching.
Cannery wastes	Use only if certified as organically grown or documented to be uncontaminated by pesticides or thoroughly composted before use.

Description, compositional requirements of substance	Conditions for use
Mushroom compost	
Naturally occurring biological organisms (e.g. worms) and their products	Worm castings (vermi-compost) from organic or non-organic manure sources in accordance with this standard. <i>See also</i> Worm castings.
Oyster shell lime	Ground shells from oysters. <i>See also</i> Limestone.
Peat moss	Shall not contain synthetic wetting agents.
Plant (vegetative) by-products	Those derived from natural substances without the addition of chemically synthesized substances or chemical treatment. Organic sources shall be used unless commercially unavailable.
Plants	Includes plant preparations of aquatic or terrestrial plants or parts of plants, such as cover crops, green manures, crop wastes, hay, leaves and straw. Parts of plants used as soil amendments and foliar feeds are permitted. Crop wastes that potentially contain significant levels of pesticide contaminants are prohibited.
Pomaces	Feedstocks shall be from certified organically grown fruits or vegetables, or the material shall be aerobically composted before use.
Shells from aquatic animals	
Soil	From organic sources in accordance with this standard for 36 months.
Soybean meal	Use organic soybean sources unless not commercially available. Shall not be from genetically engineered soybeans.
Sphagnum moss	Shall not contain synthetic wetting agents.
ii) Mineral origin	
Basic slag	
Basalt	Mined or quarried volcanic rock minerals.
Biotite (iron, magnesium or aluminum silicates)	
Borate	Shall only be used for a documented deficiency relative to the type of crop.
Boron products Borax (sodium tetraborate)	The following soluble boron products may be used: sodium tetraborate (borax and anhydrous) and sodium octaborate. Shall only be used for a documented deficiency relative to the type of crop. <i>See also</i> Trace elements (micronutrients) for documentation requirements.
Calcareous and magnesium amendments	
Calcium chloride	Natural sources and food-grade quality only. Shall be used to adjust nutrient deficiencies and physiological disorders.
Calcium, natural sources	Sources include shells from aquatic animals.
Ferric and ferrous compounds	Includes ferric oxide, ferric sulphate and ferrous sulphate. <i>See</i> Iron products; Trace elements (micronutrients).
Limestone, gypsum, marl, maerl, chalk, sugar beet lime, calcium chloride	Mined source; for correcting calcium and sulphur deficiencies and for amending soil salinity problems documented by soil and plant tissue testing. Sulphates produced using sulphuric acid are prohibited.
Iron products	Ferric oxide, ferric sulphate, ferrous sulphate, iron citrate, iron sulphate or iron tartrate may be used where a soil or plant nutrient-deficiency is documented by soil or tissue testing.

Description, compositional requirements of substance	Conditions for use
Limestone	Magnesium carbonate and calcium carbonate. May cause build-up of magnesium. Use with caution. Shall be from a natural source. Oyster shell flour, limestone, dolomite (not slaked), aragonite, eggshell meal, lime from sugar processing and mined calcium carbonate are acceptable. Calcium products that have been used in controlled atmosphere storage are prohibited.
Magnesium rock, kieserite and Epsom salt (magnesium sulphate)	Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatments. See also Mined minerals and unprocessed mined minerals.
Magnesium carbonate	Naturally occurring in dolomite and magnesite.
Magnesium chloride	Natural sources only.
Magnesium sulphate, mined	As kieserite or epsom salts. See also Mined minerals and unprocessed mined minerals. Allowed if mined. Sulphates produced using sulphuric acid are prohibited. From natural sources as a soil or plant amendment included with micronutrients; for use as a soil amendment where there is evidence of documented magnesium deficiency.
Magnesium sulphate, synthetic	As synthetically produced epsom salts. Allowed for use with a documented magnesium deficiency. Sulphates produced using sulphuric acid are prohibited.
Mined minerals and unprocessed mined minerals Greensand (glauconite) Feldspar Bentonite Granite dust Zeolite	A mined mineral shall not have undergone any change in its molecular structure through heating or by combining with other substances. Acceptable if the substance is not processed or fortified with synthetic chemicals. Mined minerals are regarded as supplements to a balanced, organic soil-building program. Some of the minerals that are mined can also be made synthetically or are by-products of industry; investigate the source of any new substance. Sodium nitrate is prohibited.
Manganese products	Manganous oxide and manganese sulphate may be used to correct documented manganese deficiencies. See Trace elements (micronutrients).
Mineral potassium (e.g., sulphate of potash, muriate of potash, kainite, sylvanite, patentkali)	Shall be obtained by physical procedures but not enriched by chemical processes
Natural phosphates	
Perlite	
Phosphate rock	Shall not be fortified or processed with synthetic chemicals. Cadmium shall not exceed 90 mg/kg P_2O_5 .
Potassium chloride (muriate of potash and rock potash)	Mined potassium salts (e.g. sylvanite and kainite).
Potassium rock powders	Includes basalt, biotite, mica, feldspars, granite and greensand.
Potassium sulphate	Only if from langbeinite or other natural sources. See also Mined minerals and unprocessed mined minerals.
Potassium sulphate magnesite	Langbeinite.
Pulverized rock, stone meal	
Clay (e.g., bentonite, perlite, vermiculite, zeolite)	
Sodium chloride	

Description, compositional requirements of substance	Conditions for use
Sulphur, elemental	Sulphur may be used as a soil amendment where more buffered sources of sulphur are not appropriate, and as a foliar application. Natural substances or those derived from natural substances without the addition of chemically synthesized substances or chemical treatment.
Sulphate of potash magnesia	From langbeinite. See also Mined minerals and unprocessed mined minerals. Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment.
Sulphates of zinc or iron	May be used only to correct for deficiencies determined by soil or plant tissue testing. Sulphates produced using sulphuric acid are prohibited. See also Iron products.
Trace elements, micronutrients	Includes micronutrients from natural sources that are unchelated or chelated by substances listed as allowed. To be used when soil and plant deficiencies are documented by soil and plant testing.
Zinc products	Zinc oxide and zinc sulphate may be used to correct a documented zinc deficiency.
iii) Microbiological	
Biodegradable processing by-products of microbial origin (e.g., by-products of brewery or distillery processing)	
Microbiological preparations based on naturally occurring organisms; Yeasts	
Microbial products	Allowable microbial products include rhizobium bacteria, mycorrhizal fungi, azolla, yeast and other micro-organisms on compost, plants, seeds, soils and other components of the organic operation. Ionizing radiation is allowed for use on peat moss carrier only, before the addition of microbial inoculants. Radiation is otherwise prohibited.
iv) Others	
Biodynamic preparations for soil and plants	Horn manure spray (Prep 500) or horn silica (Prep 501).
Calcium lignosulfonate	
Vitamins	Non-synthetic sources of all vitamins and synthetic sources of vitamins B1, C and E may be used in organic crop production.
Enzymes	Acceptable if derived microbiologically from natural substances and not fortified with synthetic plant nutrients. Ensure enzymes are not obtained through genetic engineering.

Table B.2 — Substances for plant pest and disease control

Description, Compositional Requirements of Substance	Conditions for use
i) Plant and animal origin	
Algal preparations	
Animal preparations and oils	
Beeswax	
Chitin nematicides (natural origin)	
Coffee grounds	

CD-ARS 751:2012(E)

Description, Compositional Requirements of Substance	Conditions for use
Corn gluten meal (weed control)	
Dairy products (e.g., milk, casein)	
Gelatine	
Lecithin	
Natural acids (e.g., vinegar)	
Neem (<i>Azadirachta indica</i>)	
Plant and animal oils (e.g., castor oil)	
Plant preparations and plant teas (e.g., chilli, tithonia (Africa sunflower), <i>Tagetes</i> sp., Mexican marigold)	
Plant-based repellents	
Propolis	
Pyrethrum (<i>Chrysanthemum cinerariaefolium</i>)	The synergist piperonyl butoxide shall not be used.
Quassia (<i>Quassia amara</i>)	
Rotenone (<i>Derris elliptica</i> , <i>Lonchocarpus</i> spp., <i>Thephrosia</i> spp.)	Studies show a link between rotenone and Parkinson's disease; therefore, any use should be limited and include precautionary measures.
Ryania (<i>Ryania speciosa</i>)	
Sabadilla	
Seaweed, seaweed meal, seaweed salts, salty water and seaweed extracts	
Tobacco tea (pure nicotine shall not be used)	
Fermented product from <i>Aspergillus</i>	
Extract from mushroom (Shiitake fungus)	
Extract from <i>Chlorella</i>	
Chitin nematicides	Natural origin
Natural plant preparations, excluding tobacco	
Sabadilla	
Beeswax	
ii) Mineral Origin	
Chloride of lime	
Clay (e.g., bentonite, perlite, vermiculite, zeolite)	
Copper in the form of copper hydroxide, copper oxychloride, (tribasic) copper sulphate, cuprous oxide, Bordeaux mixture and Burgundy mixture	Max 8 kg/ha per year (on a rolling average basis)
Diatomaceous earth	
Light mineral oils (paraffin)	
Lime sulphur (Calcium polysulfide)	
Potassium bicarbonate	
Potassium permanganate	
Quicklime	

Description, Compositional Requirements of Substance	Conditions for use
Silicates (e.g., sodium silicates, quartz)	
Sodium bicarbonate	
Sulphur	
Mineral powders (stone meal, silicates)	
Iron phosphates	As molluscicide
iii) Micro-organisms	
Micro-organisms (bacteria, viruses, fungi) e.g. <i>Bacillus thuringiensis</i> , Granulosis virus, etc.	
Release of parasites, predators, and sterilized insects	
iv) Others	
Herbal and biodynamic preparations	
Calcium hydroxide	
Carbon dioxide	
Ethyl alcohol	
Homeopathic and ayurvedic preparations	
Iron phosphates (for use as molluscicide)	
Sea salt and saltwater	
Soda	
Soft soap	
Sulphur dioxide	
Rodenticides	
Sterilized insect males	
v) Traps, barriers, repellents	
Physical methods (e.g., chromatic traps, mechanical traps)	
Mulches, nets	
Pheromones (in traps and dispensers only)	
Preparations on the basis of metaldehyde containing a repellent to higher animal species and as far as applied in traps.	
Mineral oils	
Mechanical control devices such as e.g., crop protection nets, spiral barriers, glue-coated plastic traps, sticky bands.	

Table B.3 — Crop production aids and materials

Common name(s)	Origin and usage
Acetic acid, non-synthetic	Used as a drip irrigation cleaner, an equipment cleaner and an adjuvant to adjust the pH of sprays.
Adhesives for sticky traps and barriers	Shall not contain prohibited pesticides or other prohibited substances.
Alcohol	Non-synthetic ethyl alcohols are allowed. Synthetic sources of ethyl and isopropyl alcohols may be used only as disinfectants or formulant ingredients. Alcohol, ethyl (ethanol) used as a cleaning agent for equipment used in maple syrup production shall be unadulterated food-grade quality.
Alcohol, ethyl (ethanol)	Permitted for use as a disinfectant. See also Alcohol.
Alcohol, isopropyl	Permitted for use as a disinfectant. See also Alcohol.
Alkali carbonates and bicarbonates	For disinfecting greenhouse facilities.
Amino acids, non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Nonsynthetic amino acids may be used as plant growth regulators or chelating agents if approved by the competent authority.
Ammonium carbonate	For use as bait in insect traps and for monitoring purposes only. Shall not be in contact with crop or soil.
Arthropod pathogens	See Biological organisms.
Arthropod predators and parasitoids	See Biological organisms.
Arthropods	See Biological organisms.
Ascorbic acid, non-synthetic	Used for cleaning irrigation lines, adjusting the pH of sprays, and promoting natural growth. The synthetic form of this substance has not been reviewed.
Baits for rodent traps	Baits shall not contain synthetic substances.
Baking soda (potassium or sodium bicarbonate)	Allowed for pest and disease control in greenhouses. Permitted for use as a cleaning agent for equipment used in the production and processing of food.
Bentonite	See Mined minerals and unprocessed mined minerals.
Biodynamic preparations for compost	Chamomile (Prep 503), dandelion (Prep 506), oak bark (Prep 505), stinging nettle (Prep 504), valerian (Prep 507) and yarrow flowers (Prep 502).
Biological organisms	Living organisms that benefit plant production by reducing pest populations, such as <i>Bacillus thuringiensis</i> , spinosad, granulosis (e.g. viruses, bacteria, protozoa, fungi, insects and nematodes). No organisms from genetic engineering.
Bleach	Calcium hypochlorite, chlorine dioxide or sodium hypochlorite used for disinfecting and sanitizing facilities and equipment. Flush water from cleaning irrigation equipment shall not exceed the maximum limits set by the federal and provincial governments. Allowed for disinfecting and sanitizing food contact surfaces. Residual chloride levels for wash water in direct contact with crops or food, and in flush water from cleaning irrigation systems that is applied to crops or fields shall not exceed the maximum limits under federal and provincial regulations.
Borate	Sodium tetraborate and octaborate may be used as wood preservatives. Only mined sources acceptable.
Boric acid	May be used for structural pest control (i.e. ants). No direct contact with food or crops that will be organic is allowed.
Botanical pesticides	Botanical pesticides shall be used in conjunction with a biorational pest management program but shall not be the primary method of pest control in the farm plan. The least toxic botanicals shall be used in the least ecologically disruptive way possible. All label restrictions and directions shall be followed including restrictions concerning crops, livestock, target pests, safety precautions, pre-harvest intervals and worker re-entry.
Calcium chloride	Natural sources and food-grade quality only. Can be used to adjust nutrient deficiencies and physiological disorders
Calcium lignin sulphonate	See Lignin sulphonates.
Calcium polysulphide	See Lime sulphur.
Carbon dioxide	For soil and greenhouse use and for controlled atmosphere storage.
Caustic potash (potassium hydroxide)	For disinfecting greenhouse facilities only.

Common name(s)	Origin and usage
Chelates	Natural chelates (e.g. amino acids, citric acid, tartaric acid and other di- and triacid chelates) and lignin sulphonate are allowed (see Lignin sulphonates). Synthetic chelating agents are not allowed with micronutrients unless they are specifically listed for such use. Some synthetic chelates are allowed on a case-by-case basis for use only with micronutrients sprays, for a documented deficiency. Prohibited chelating agents include DTPA, EDTA, HEDTA, NTA, glucoheptonic acid and its salts, and synthetic amino acids.
Chloride of lime	See Calcium chloride.
Chlorine	See Bleach.
Citric acid	Used as a drip irrigation cleaner, an equipment cleaner, a chelating agent and a pH adjuster.
Citric acid, synthetic	May be used to remove mineral residues on osmosis membranes used in maple syrup production.
Copper products	These include copper hydroxide for use as a wood preservative (copper hydroxide is an active ingredient in products currently registered for use as wood preservatives) or for disease control; copper sulphates for use as a fungicide; Bordeaux mix, and copper oxychloride, fungicides or wood treatments, where there are approvals, for fruits and vegetables. These products shall be used in a manner that prevents excessive copper accumulation in the soil. Buildup of copper in soil may prohibit future use. Use with caution. No visible residue shall be allowed on harvested crops. Basic copper sulphate, copper oxide, copper sulphate and copper oxysulphate may be used to correct documented copper deficiencies. Copper ammonia base, copper ammonium carbonate, copper nitrate and cuprous chloride are prohibited as sources of copper for plant nutrients.
Cytokinins	See Growth regulators for plants.
Detergents	Includes soaps — biodegradable only (whose biodegraded components are not more harmful than the original components). Allowed for use as equipment cleaners, including equipment used in the production and processing of food. Includes natural wetting agents; see also Wetting agents. Evaluated on a case-by-case basis.
Diatomaceous earth	Only non-heated forms may be used. Make sure no synthetic pesticides or synergists are added.
Dormant oils	Allowed for use as a dormant spray on woody plants only. Shall not contain any prohibited insecticides or other prohibited ingredients.
Drip irrigation cleaners	Preferred drip irrigation cleaners include vinegar, citric acid and other naturally occurring acids. See also Bleach; Detergents.
Fibre row covers	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season.
Gibberellic acid	Acceptable if made from a fermentation process and not fortified with prohibited synthetic substances. Fermentation process shall not use organisms from genetic engineering. See also Growth regulators for plants.
Growth regulators for plants	Natural plant hormones, such as gibberellic acid, indoleacetic acid and cytokinins, are allowed. Shall not contain prohibited synthetic substances. See also Gibberellic acid.
Hormones	See Growth regulators for plants.
Hydrogen peroxide	Hydrogen peroxide as a cleaning agent for equipment shall be food-grade quality only.
Indoleacetic acid	See Growth regulators for plants.
Iodine	Non-elemental and not to exceed 5% solution by volume.
Kaolin clay	
Latex paint	Latex paint is allowed as a tree seal and on tree trunks to protect against southwest disease.
Lignin sulphonates	Lignosulphonic acid, calcium lignosulphate and sodium lignosulphate. Allowed as a chelating agent, as a formulant ingredient and as a dust suppressant. Ammonium lignosulphate is prohibited.
Lime sulphur	Foliar application as a fungicide is allowed on a restricted basis. May be used as an insecticide only if there are no feasible alternatives. Includes calcium polysulphide.
Lye, sodium hydroxide	For disinfecting greenhouses only. Prohibited for use in crop production, such as for adjusting the pH. Allowed as a cleaner, including the maintenance of reverse osmosis membranes used in maple syrup production. Prohibited for use in lye peeling of fruits and vegetables.
Magnesium chloride	Natural sources only.

Common name(s)	Origin and usage
Nitrogen	For controlled atmosphere storage.
Oxygen	For controlled atmosphere storage.
Peracetic acid	For use in controlling fire blight bacteria, once it is registered for that use in Canada.
pH buffers	Shall be from a natural source, such as citric acid or vinegar. Lye and sulphuric acid are prohibited.
Pheromones	Allowed for use in pheromone traps or dispensers. Pheromones shall be non-synthetic and shall not be combined with prohibited materials.
Plant extracts, oils and preparations	Allowed for use as production aids unless otherwise specifically restricted or prohibited. Allowed extractants include cocoa butter, lanolin, animal fats, alcohols and water. Allowed for disease and pest control once approved by competent authority. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. Of the two products, potassium hydroxide is the preferred choice; the manufacturer shall prove the need to use sodium hydroxide.
Plant protectants, natural	Substances that protect plants from harsh environmental conditions such as frost and sunburn, infection, the buildup of dirt on leaf surfaces, or injury by a pest. Natural substances are allowed, including diatomaceous earth, kaolin clay, pine oil, pine resin and yucca. Interior latex paint and white wash are allowed for use on trees to protect against sunburn and southwest disease.
Plastic for row covers and solarization	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season. Use of polyvinyl chloride plastic is prohibited.
Pyrethrum	Pyrethrin is the active ingredient in products licensed for use as insecticides. Currently the only pyrethrin product (without the prohibited adjuvant piperonyl butoxide) is allowed for use in mushroom production only.
Quick lime	Also known as calcium oxide. Prohibited as a fertilizer.
Repellents	Acceptable if derived from a natural source, such as sterilized blood meal, rotten eggs, hair or predator scents, provided synthetic additives are not used.
Rotenone	Shall not be combined with unacceptable formulants.
Seaweed and seaweed products	Aquatic plant products are prohibited if they contain other synthetic preservatives such as formaldehyde or are fortified with prohibited plant nutrients.
Seed treatments	Non-synthetic and allowed synthetic substances, such as microbial products, kelp, yucca, gypsum and various clays, are allowed.
Semiochemicals	Semiochemicals shall be non-synthetic and shall not be combined with prohibited materials.
Soap-based algaecide/demisters	Algaecide, disinfectants and sanitizers including irrigation cleaning systems that do not contain prohibited or restricted substances.
Soaps	Insecticidal soaps consisting of fatty acids derived from animal or vegetable oils are allowed.
Soaps, ammonium	For use as a large animal repellent only; no contact with soil or edible portion of crop allowed.
Sodium bicarbonate (baking soda)	See Baking soda (potassium or sodium bicarbonate).
Sodium metabisulphite	May be added to the filtrate to prevent mould growth during storage of osmosis membranes used in maple syrup production.
Sodium silicate	For tree fruit and fibre processing.
Sterile insects	See Biological organisms.
Straw	If organic, allowed for use as mulch or in compost. If from a non-organic source, ensure any straw used is uncontaminated.
Sugar	Organic sugar may be used as an ingredient in a crop production aid.
Sulphur (smoke bombs)	Sulphur smoke bombs used for rodent control shall be used in conjunction with other methods and only when a full pest control program is maintained but temporarily overwhelmed.
Sulphur, elemental	Allowed for foliar use only.
Surfactants	See Detergents; Soaps.
Transplant and potting media	Shall be composed entirely of allowed substances.
Treated seed, non-synthetic agents	Seed treated with naturally occurring biological management agents are allowed. Organisms from genetic engineering are prohibited. Seed pelletized with clay, gypsum or other non-synthetic coating is allowed. For rhizobial

Common name(s)	Origin and usage
	bacteria coatings, pelletized seeds are allowed unless pelletizing substance contains prohibited substances. Plastic polymer pelletization of seed is prohibited. <i>See also</i> Seed treatments.
Tree seals	Plant or milk-based paints are recommended but interior latex paints may be used. Other petroleum substances may be used if there is no alternative. Shall not be combined with fungicides or other synthetic chemicals.
Vegetable oils	Spreader-stickers, surfactants and carriers. Plant oils shall not contain synthetic pesticides.
Vinegar	Allowed as a cleaning agent for equipment used in production and processing.
Virus sprays	Shall be evaluated on a product specific basis. Codling moth granulosis virus is acceptable. No viruses from genetic engineering are allowed.
Water	
Water, reclaimed	Reclaimed water shall comply with federal, provincial and local standards and shall be used only on non-edible parts of food crops and on crops not for human consumption. Use on edible plant parts and root crops is prohibited.
Wetting agents	Natural wetting agents, including soaps, saponins and microbial wetting agents, are allowed. <i>See also</i> Detergents; Soaps.

Table B.4 — Weed management

Common Name(s)	Origin and usage
Biological organisms	Living organisms that benefit plant production by reducing pest populations (e.g. viruses, bacteria, protozoa, fungi, insects, nematodes, nematode-repelling cover crops and animals). No organisms from genetic engineering.
Mulches	Organic matter in the form of plant residues from organic sources is allowed for mulching. Non-organic forms of straw, leaves, grass clippings, wood chips, sawdust or hay shall be free of pesticides and other contaminants. Newspaper mulch: Glossy paper and coloured ink are prohibited. Paper: Glossy paper and coloured ink are prohibited. Plastic mulches: Shall not be incorporated into the soil or left in field to decompose; shall be removed at the end of the growing season. Plastic mulches in perennial crops may be left for more than one season but shall be removed before the plastic decomposes. Use of polyvinyl chloride as plastic mulch or row cover is prohibited.
Plant extracts	Allowed once they are approved by competent authority.
Plant oils	Allowed once they are approved by competent authority.
Sawdust and wood chips	Shall be from untreated and unpainted wood. Derived from natural substances, or those derived from natural substances shall be from wood that has not been treated with prohibited substances.
Straw	If organic, allowed for use as mulch or in compost. Restricted if from a nonorganic source to ensure any straw used is uncontaminated.
Vinegar (acetic acid)	Non-synthetic sources unless commercially unavailable.
Wood chips and shavings	From untreated and unpainted wood only. Shall be free from prohibited

B.2 Permitted substances lists for livestock production

B.2.1 Classification

Livestock production substances are classified according to the following uses and applications:

- (a) **Feed, feed additives and feed supplements**
- (b) **Health care products** include medications, remedies, parasiticides and other substances used to maintain or restore the well-being of an animal. They shall be used with the degree of care that animal drugs require. All substances to be used for livestock shall be approved by the competent authority.
- (c) **Production aids** include all other substances used on animals and their living areas, such as bedding, cleaners, disinfectants and dips.

Table B.5 — Feed, feed additives and feed supplements

Common Name(s)	Origin and usage
Diatomaceous earth	Approved as an anti-caking agent in feed to a maximum of 2% of the total diet.
Forage concentrates (grains) and roughages (hay, silage, fodder, straw) and energy feeds	Shall be obtained from enterprises certified organic in accordance with this standard and may include silage preservation products (e.g. bacterial or enzymatic additives derived from bacteria, fungi and plants and food by-products [e.g. molasses and whey]). Note that if weather conditions are unfavourable to fermentation, lactic, propionic and formic acid may be used with approval of the certification body.
Milk replacer	Only without antibiotics and animal fats, and for emergency use only.
Molasses	May be used as a flavouring agent; shall be organic unless commercially unavailable.
Pre-mixes	Concentrated mixture of minerals and vitamins; all ingredients shall be organically sourced, where applicable, and shall be essential for animal nutrition.
Protein feeds	Shall be from organic sources.
Seaweed meal	
Trace minerals, elements (mineral products)	Non-synthetic chelated or sulphated minerals that are registered for use in livestock feed. Synthetic nutrient minerals may be used when non-synthetic sources are unavailable. Minerals may not be used to stimulate growth or production. Minerals from any source are allowed for medical use.
Vitamins, natural	Used for enrichment or fortification of livestock feed. Synthetic vitamins may be used if non-synthetic sources are unavailable. Vitamins from any source are allowed for medical use.

Table B.6 — Healthcare products

Common Name(s)	Origin and usage
Acetylsalicylic acid	Aspirin.
Alcohol, ethyl (ethanol)	Allowed as a disinfectant and sanitizer only.
Alcohol, isopropyl	Allowed as a disinfectant only.
Antibiotics	Refer to conditions on antibiotic use in livestock. See also Antibiotics, oxytetracycline.
Antibiotics, oxytetracycline	For emergency use for bees. The equipment shall be destroyed, but the bees need not be destroyed if they are taken out of organic production and treated with oxytetracycline.
Anti-inflammatories	For health care use, to reduce inflammation. Preference shall be given to natural alternatives.
Biologics, including vaccines	Organisms from genetic engineering or their products (e.g. recombinant gene technology) are not allowed.
Botanical compounds	Botanical preparations registered for use and according to label specifications.
Chlorohexidine	For surgical procedures conducted by a veterinarian. Allowed for use as a teat dip when alternative germicidal agents and physical barriers have lost their effectiveness.
Colostrum whey	Probiotic.
Colostrum	Shall be organic unless commercially unavailable.
Copper sulphate	For use as an essential nutrient (source of copper and sulphur) and for topical use (foot baths). Sulphates produced using sulphuric acid are prohibited.
Diatomaceous earth	For use in control of external parasites once it is approved by the competent authority.
Electrolyte solutions	With no added active ingredients.
Electrolytes	Without antibiotics.
Formic acid	For apicultural use to control parasitic mites. This substance may be used after the last honey harvest of the season and shall be discontinued 30 days before the addition of honey supers.
Glucose	
Glycerin	For use as a livestock teat dip; shall be produced through the hydrolysis of fats or oils.
Homeopathic and biotherapies	Shall be approved by the competent authority.

Common Name(s)	Origin and usage
Honey	Organic honey is allowed.
Hydrogen peroxide	Food-grade quality only; for external use as a disinfectant. May be added to livestock's drinking water as a disinfectant.
Iodine	For use as a topical disinfectant. Sources include potassium iodide and elemental iodine. As a cleaning agent, shall be followed by a hot-water rinse. Nonelemental only; not to exceed 5% solution by volume (e.g. iodophors).
Iron products	May be supplied by ferric phosphate, ferric pyrophosphate, ferrous lactate, ferrous sulphate, iron carbonate, iron gluconate, iron oxide, iron phosphate, iron sulphate or reduced iron.
Lime, hydrated	Not permitted to cauterize physical alterations or deodorize animal wastes.
Local anesthetics	Use requires a withdrawal period of 90 days after administering to livestock intended for slaughter, and 7 days after administering to dairy animals. Preference shall be given to natural alternatives.
Magnesium sulphate	Mined sources only. A source of magnesium and sulphur. Sulphates produced using sulphuric acid are prohibited.
Mineral oil	For topical use and as a lubricant.
Oxalic acid	For the control of mites in honeybee colonies.
Oxytocin	For postparturition therapeutic applications.
Parasiticides and anti-microbials	See for conditions regarding the use of internal parasiticides.
Plant oils	To control external parasites.
Rotenone	For external parasites, rotenone shall not be combined with unacceptable formulants.
Selenium products	May be derived from sodium selenate or sodium selenite. See Trace minerals, elements (mineral products). May be used where documented deficiencies in the stock, soils or feed supplies exist.
Trace minerals, elements (mineral products)	Non-synthetic chelated or sulphated minerals that are registered for use in livestock feed. Synthetic nutrient minerals may be used when non-synthetic sources are unavailable. Minerals may not be used to stimulate growth or production. Minerals from any source are allowed for medical use.
Vaccines	See Biologics, including vaccines.
Vitamins, natural	Used for enrichment or fortification. If allowed by federal regulation, synthetic vitamins may be used if non-synthetic sources are unavailable. Vitamins from any source are allowed for medical use.

Table B.7 — Production aids

Common Name(s)	Origin and usage
Chlorine	Calcium hypochlorite, chlorine dioxide or sodium hypochlorite used for disinfecting and sanitizing facilities and equipment. Residual chlorine levels in water shall not exceed the maximum residual disinfectant limit under federal and provincial regulations. See also Bleach.
Hydrogen peroxide	Food-grade quality only; for external use as a disinfectant.
Iodine	As a cleaning agent, shall be allowed by a hot water rinse. Non-elemental only, not to exceed 5% solution by volume (e.g. iodophors).
Phosphoric acid	As an equipment cleaner for the dairy industry only, provided no direct contact with organically managed livestock or land occurs.

Annex C (normative)

Prohibited substances, methods or ingredients in organic production and handling

C.1 Natural substances which shall not be used in organic production according to this standard.

Description, compositional requirements of substance	Comments
Nicotine (pure)	Tobacco tea is allowed; however; safety measures shall be taken to reduce skin contact
Chilean nitrate	Chilean nitrate (sodium nitrate) may not be used on certified organic farms because it contains sodium which could build up and be harmful to the crop

C.2 When producing or handling organic products, it is forbidden to use any of the following substances or techniques:

- (a) All materials and products produced from genetic engineering as these are not compatible with the general principles of organic production and therefore are not accepted under this standard, except for vaccines only that have been grown on genetically engineered substrates but are not themselves a product of genetic engineering, as specified in Annex B.
- (b) Synthetic pesticides (e.g. defoliants and desiccants, fungicides, insecticides and rodenticides), wood preservatives (e.g. arsenate) or other pesticides, except as specified in Annex B.
- (c) Fertilizer or composted plant and animal material that contains a substance prohibited by this Annex (and not included in Annex B).
- (d) Sewage sludge, in any form, as defined in this standard, as a soil amendment
- (e) Synthetic growth regulators
- (f) Synthetic allopathic veterinary drugs, including antibiotics and parasiticides, except as specified in this standard
- (g) Synthetic processing substances, aids and ingredients, and food additives and processing aids including sulphates, nitrates and nitrites, except as specified in Annex B.
- (h) Ionizing radiation and forms of irradiation on products destined for food or their inputs, as defined in this standard, except as specified in Annex B.
- (i) Equipment, packaging materials and storage containers, or bins that contain a synthetic fungicide, preservative or fumigant
- (j) Substances that are not included in Annex B, except as provided by this standard
- (k) Cloned farm animals and their descendants. A producer shall know the lineage of any non-organic animal brought under organic management.
- (l) Intentionally manufactured nano-technology products, or nano-processes involving intentional manipulation of matter at the nano scale to achieve new properties or functions that are different than properties and functions of the materials at the macro scale, except naturally occurring nano sized particles, or those produced incidentally through normal processes such as grinding flour, or nano sized particles used in a way that guarantees no transference to product.

C.2 The same ingredient in both an organic and non-organic form shall not be present in an organic product.

Annex D (informative)

List of additives and processing aids for organic food processing

D.1 Additives permitted for use under specified conditions in certain organic food categories or individual food items

The following table provides a list of those food additives including carriers which are allowed for use in organic food production. The functional uses and food categories and individual food items for each food additive in the following table are governed by the provisions in Tables 1–3 of the CODEX STAN 192 *General Standard for Food Additives* and other standards which have been adopted by the Codex Alimentarius Commission.

The table is an indicative list for the purpose of processing organic food only. Countries may develop a list of substances for national purposes that satisfy the requirements as recommended in Clause 6.2 of this standard.

Food additives in this table can be used to perform the function indicated in the specified food products.

Table D.1 — Ingredients of non-agricultural origin referred to in Clause 14 of this standard

INS	Product	Functional use allowed in organic production	Permitted for use in food categories	
			Food of plant origin	Food of animal origin
INS 153	Wood ash	All		Traditional cheeses
INS 170i	Calcium carbonate	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.0
INS 181	Tannin	All	Only for wine	
INS 184	Tannic acid	All	Filtration aid for wine	
INS 220	Sulphur dioxide	All	14.2.2 Cider and perry 14.2.3 Grape wines 14.2.4 Wines (other than grapes)	14.2.5 Mead
INS 224	Potassium metabisulphite	All	Only for wine	
INS 270	Lactic acid (L- D- and DL-)	All	04.2.2.7 Fermented vegetable (including mushrooms and fungi, roots and tubers, pulses and legumes and aloe vera), and seaweed products, excluding fermented soybean products of food category 12.10	01.0 Dairy products and analogues, excluding products of food category 02.008.4 Edible casings (e.g. sausage casings)
INS 290	Carbon dioxide	All	Permitted, although exclusions of the GSFA still apply.	Permitted, although exclusions of the GSFA still apply.
INS 296	DL-malic acid	All	Permitted, although exclusions of the GSFA still apply.	Not permitted
INS 300	Ascorbic acid	All	Provided insufficient natural sources are available. Permitted, although exclusions of the GSFA still apply.	Provided insufficient natural sources are available.08.2 Processed meat, poultry, and game products in whole pieces or cuts 08.3 Processed comminuted meat, poultry, and game products 08.4 Edible casings (e.g., sausage casings)
INS 306	Tocopherols, mixed natural concentrates	All	Permitted, although exclusions of the GSFA still apply.	All mixed products allowed under the General Standard for Food Additives and Standards adopted by the Codex Alimentarius Commission

INS	Product	Functional use allowed in organic production	Permitted for use in food categories	
			Food of plant origin	Food of animal origin
INS 322	Lecithins (obtained without bleaches and organic solvents.)	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.002.0 Fats and oils, and fat emulsions 12.6.1 Emulsified sauces (e.g. mayonnaise, salad dressing) 13.1 Infant formulae and follow-on formulae 13.2 Complementary foods for infants and young children
INS 327	Calcium Lactate		Not permitted	01.0 Dairy products and analogues, excluding products of food category 02.0
INS 330	Citric acid	All	04.0 Fruits and vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds	As a coagulation agent for specific cheese products and for cooked eggs 01.6 Cheese and analogues 02.1 Fats and oils essentially free from water 10.0 Egg and egg products
INS 331i	Sodium dihydrogen citrate	All	Not permitted.	01.1.1.2 Butter milk (plain) (Stabilizer only) 01.1.2 Dairy-based drinks, flavoured and/or fermented (e.g., chocolate milk, cocoa, eggnog, drinking yoghurt, whey-based drinks) 01.2.1.2 Fermented milks (plain), heat-treated after fermentation (Stabilizer only) 01.2.2 Renneted milk (Stabilizer only) 01.3 Condensed milk and analogues (plain) (Stabilizer only) 01.4 Cream (plain) and the like (Stabilizer only) 01.5.1 Milk powder and cream powder (plain) (Stabilizer only) 01.6.1 Unripened cheese (Stabilizer only) 01.6.4 Processed cheese (Emulsifier only) 01.8.2 Dried whey and whey products, excluding whey cheeses 08.3 Processed comminuted meat, poultry, and game products, restricted to sausages. To be used in pasteurization of egg whites only in the following: 10.2 Egg Products
INS 332i	Potassium dihydrogen citrate	All	Not permitted.	Permitted, although exclusions of the GSFA still apply.
INS 333	Calcium citrates	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.0
INS 334	Tartaric acid and salts	All	Permitted, although exclusions of the GSFA still apply.	Not permitted
INS 335i	Monosodium tartrate	All	05.0 Confectionery 07.2.1 Cakes	Not permitted
INS 335ii	Disodium tartrate			
INS 336i	Monopotassium tartrate	All	05.0 Confectionery 06.2 Flours and starches 07.2.1 Cakes	Not permitted
INS 336ii	Dipotassium tartrate			
INS 341	Monocalcium orthophosphate	All	06.2.1 Flours	Not permitted
INS 342	Ammonium phosphate	All	Restricted to 0.3 gm/L in wine	
INS 400	Alginic acid	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.0

INS	Product	Functional use allowed in organic production	Permitted for use in food categories	
			Food of plant origin	Food of animal origin
INS 401	Sodium alginate	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.0 All mixed products allowed under the <i>General Standard for Food Additives</i> and Standards adopted by the Codex Alimentarius Commission
INS 402	Potassium alginate	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.0 All mixed products allowed under the <i>General Standard for Food Additives</i> and Standards adopted by the Codex Alimentarius Commission
INS 406	Agar	All	Permitted, although exclusions of the GSFA still apply.	Permitted, although exclusions of the GSFA still apply.
INS 407	Carrageenan	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.0
INS 410	Carob (locust) bean gum	All	Permitted, although exclusions of the GSFA still apply	01.1 Milk and dairy-based drinks01.2 Fermented and renneted milk products (plain), excluding food category 01.1.2 (dairy-based drinks) 01.3 Condensed milk and analogues (plain)01.4 Cream (plain) and the like01.5 Milk powder and cream powder and powder analogues (plain) 01.6 Cheese and analogues01.7 Dairy-based desserts (e.g. pudding, fruit or flavoured yoghurt)01.8.1 Liquid whey and whey products, excluding whey cheeses08.1.2 Fresh meat, poultry and game, comminuted 08.2 Processed meat, poultry, game products in whole pieces or cuts08.3 Processed comminuted meat, poultry, and game products08.4 Edible casings (e.g. sausage casings)
INS 412	Guar gum	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.08.2.2 Heat-treated processed meat, poultry, and game products in whole pieces or cuts8.3.2 Heat-treated processed comminuted meat, poultry, and game products10.2 Egg products
INS 413	Tragacanth gum	All	Permitted, although exclusions of the GSFA still apply.	Permitted, although exclusions of the GSFA still apply.
INS 414	Gum Arabic	All	02.0 Fats and oils, and fat emulsions05.0 Confectionery	01.0 Dairy products and analogues, excluding products of food category 02.002.0 Fats and oils, and fat emulsions05.0 Confectionery
INS 415	Xanthan gum	All	02.0 Fats and oils, and fat emulsions04.0 Fruits and vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds07.0 Bakery wares12.7 Salads (e.g. macaroni salad, potato salad)	Not permitted
INS 416	Karaya gum	All	Permitted, although exclusions of the GSFA still apply.	Not permitted

INS	Product	Functional use allowed in organic production	Permitted for use in food categories	
			Food of plant origin	Food of animal origin
INS 422	Glycerol		Obtained from plant origin; used as a carrier for plant extracts 04.1.1.1 Untreated fresh fruit 04.1.1.2 Surface-treated fresh fruit 04.1.2 Processed fruit 04.2.1.2 Surface-treated fresh vegetables, (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds and nuts and seeds 04.2.2.2 Dried vegetables, (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds 04.2.2.3 Vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), and seaweeds in vinegar, oil, brine, or soy sauce 04.2.2.4 Canned or bottled (pasteurized) or retort pouch vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), and seaweeds 04.2.2.5 Vegetable, (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweed, and nut and seed purees and spreads (e.g., peanut butter) 04.2.2.6 Vegetable, (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweed, and nut and seed pulps and preparations (e.g., vegetable desserts and sauces, candied vegetables) other than food category 04.2.2.5 04.2.2.7 Fermented vegetable (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera) and seaweed products, excluding fermented soybean products of food category 12.1012.2 Herbs, spices, seasonings, and condiments (e.g., seasoning for instant noodles)	Not permitted
INS 440	Pectins (non-amidated)	All	Permitted, although exclusions of the GSFA still apply.	01.0 Dairy products and analogues, excluding products of food category 02.0
INS 500ii INS 500iii	Sodium hydrogen carbonate Sodium sesquicarbonate	All	05.0 Confectionery 07.0 Bakery Wares	01.0 Dairy products and analogues, excluding products of food category 02.0
INS 501i	Potassium carbonate	All	05.0 Confectionery 06.0 Cereals and cereal products, derived from cereal grains, from roots and tubers, pulses and legumes, excluding bakery wares of food category 07.007.2 Fine Bakery wares (sweet, salty, savoury) and mixes	Not permitted
INS 503i INS 503ii	Ammonium carbonate Ammonium hydrogen carbonate	Acidity Regulator Raising Agent	Permitted, although exclusions of the GSFA still apply.	Not permitted
INS 504i INS 504ii	Magnesium carbonate Magnesium hydrogen carbonate	All	Permitted, although exclusions of the GSFA still apply.	Not permitted

INS	Product	Functional use allowed in organic production	Permitted for use in food categories	
			Food of plant origin	Food of animal origin
INS 508	Potassium chloride	All	04.0 Fruits and vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds 12.4 Mustards 12.6.2 Non-emulsified sauces (e.g. ketchup, cheese sauces, cream sauces, brown gravy)	Not permitted
INS 509	Calcium chloride	All	04.0 Fruits and vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds 06.8 Soybean products (excluding soybean products of food category 12.9 and fermented soybean products of food category 12.10) 12.9.1 Soybean protein products 12.10 Fermented soybean products	01.0 Dairy products and analogues, excluding products of food category 02.008.2 Processed meat, poultry, and game products in whole pieces or cuts 08.3 Processed comminuted meat, poultry and game products 08.4 Edible casings (e.g. sausage casings)
INS 511	Magnesium chloride	All	06.8 Soybean products (excluding soybean products of food category 12.9 and fermented soybean products of food category 12.10) 12.9.1 Soybean protein products 12.10 Fermented soybean products	Not permitted
INS 513	Sulphuric acid	Acid regulator	pH adjustment of water during sugar processing	
INS 516	Calcium sulphate	All	06.8 Soybean products (excluding soybean products of food category 12.9 and fermented soybean products of food category 12.10) 07.2.1 Cakes, cookies and pies (e.g. fruit-filled or custard type) 12.8 Yeast and like products 12.9.1 Soybean protein products 12.10 Fermented soybean products	Not permitted
INS 517	Ammonium sulphate	All	Only for wine, restricted to 0.3 mg/l	
INS 524	Sodium hydroxide	All	06.0 Cereals and cereal products, derived from cereal grains, from roots and tubers, pulses and legumes, excluding bakery wares of food category 07.007.1.1.1 yeast-leavened breads and specialty breads	Not permitted
INS 525	Potassium hydroxide	All	pH adjustment for sugar processing	
INS 526	Calcium hydroxide	All	Food additive for maize and tortilla flour; processing aid for sugar	
INS 551	Silicon dioxide (amorphous)	All	12.2 Herbs, spices, seasonings, and condiments (e.g. seasonings for instant noodles); For wine, fruit and vegetable processing	
INS 553	Talc	All		
INS 901	Beeswax	All		
INS 903	Carnauba wax	All		
INS 938	Argon	All		
INS 941	Nitrogen	All	Permitted, although exclusions of the GSFA still apply	Permitted, although exclusions of the GSFA still apply
INS 948	Oxygen	All		
	Activated carbon	All		
	Bentonite	All	Only for fruit and vegetable products	
	Casein	All	Only for wine	
	Diatomaceous earth	All	Only for sweeteners and wine	

INS	Product	Functional use allowed in organic production	Permitted for use in food categories	
			Food of plant origin	Food of animal origin
	Egg-white albumen	All	Only for wine	
	Alcohol, ethyl (ethanol)	All	Alcohol used as an ingredient shall be from an organic source.	
	Gelatine	All	Only for wine, fruit, and vegetables	
	Hazelnut shells	All		
	Isinglass	All	Only for wine	
	Kaolin	All		
	Perlite	All		
	Preparations of bark	All		
	Vegetable oil	All	Greasing or releasing agent. Shall be obtained from organic sources without the use of synthetic solvents.	
	Water	All		

D.2 Flavourings

Substances and products labelled as natural flavouring substances or natural flavouring preparations are defined in CAC/GL 29.

D.3 Water and salts

Drinking water.

Salts (with sodium chloride or potassium chloride as basic components generally used in food processing).

D.4 Preparations of micro-organisms and enzymes

Any preparations of micro-organisms and enzymes normally used as processing aids in food processing, with the exception of genetically engineered/modified organisms and enzymes derived from genetically engineered/modified organisms.

D.5 Preparations of organic and non-organic substances

- (a) **Organic ingredients** are agricultural commodities that shall be organically produced to be included in a product labelled organic, to be identified as organic in the ingredient panel, or both. The vast majority of agricultural commodities used in organic products fall into this category.
- (b) **Non-organic Ingredients (NOI)** are in most cases considered non-agricultural, although some of the fundamental ingredients may have originated from agricultural-based commodities. Non-organic ingredients may be used only when an acceptable alternative, non-synthetic ingredient is commercially unavailable.
- (c) **“With Organic Ingredients”** — Substances prohibited in products labelled “organic” but allowed in food products labelled “contains X% organic ingredients.”

D.6 Other categories of substances

Other categories of substances are classified according to the following uses and applications:

- (a) **Processing aids** are substances or ingredients that are added to a product for a technological effect during processing. They are not present in the finished product or are present at insignificant or non-functional levels.

- (b) **Cleaners, Disinfectants and Sanitizers** are used to remove dirt, filth and foreign matter from products and product-handling operations. These substances are also used to control micro-organisms that may contaminate products.
- (c) **Pest Control Substances** are used to disinfect or prevent infestation of stored commodities, prevent postharvest decay, and control losses from insects, diseases, rodents and other organisms.

Table D.2 — Processing aids which may be used for the preparation of products of agricultural origin referred to in Clause 14 if this standard

Substance	Specific conditions
For Plant Products	
Water	
Calcium chloride	Coagulation agent
Calcium carbonate	
Calcium hydroxide	
Calcium sulphate	Coagulation agent. As a carrier for cakes and biscuits, soybean products and bakers' yeast. Sulphates produced using sulphuric acid are prohibited.
Diatomaceous earth	As a food filtering aid or as a clarifying agent only.
Ethylene	For postharvest ripening of tropical fruit and degreening of citrus only.
Magnesium chloride (or nigari)	coagulation agent
Potassium carbonate	drying of grape raisins
Caustic potash (potassium hydroxide)	For pH adjustment only. Prohibited for use in lye peeling of fruits and vegetables.
Rice hulls	As a filtering agent.
Carbon dioxide	For controlled atmosphere storage.
Nitrogen gas	Only oil-free grades.
Alcohol, ethyl (ethanol)	solvent Alcohol used as an ingredient shall be from an organic source.
Tannic acid	filtration aid
Egg white albumin	Albumen and albumin, as a clarifying agent; a non-organic source may be used if an organic source is not available.
Casein	
Gelatine	
Isinglass	
Silicon dioxide	as gel or colloidal solution
Activated carbon (charcoal)	Shall be of plant origin.
Talc	As a filtering agent.
Bentonite	
Kaolin	As a clarifying agent.
Diatomaceous earth	
Perlite	For use as a filter aid in food processing only.
Hazelnut shells	
Powdered milk	As a desiccant.
Beeswax	releasing agent
Carnauba wax	releasing agent
Isinglass	As a fining agent (fish-based).
Oxygen	For controlled atmosphere storage.
Ozone	
Sulphuric acid	pH adjustment of extraction water in sugar production
Sodium hydroxide	pH adjustment in sugar production
Tartaric acid and salts	
Sodium carbonate	sugar production
Preparations of bark components	
Potassium hydroxide	pH adjustment for sugar processing
Citric acid	pH adjustment
Vegetable fat and oil	Obtained without the use of synthetic solvents; greasing or releasing agent

Table D.3 — For livestock and bee products

The following is a provisional list for the purposes of processing livestock and bee products only. Countries may develop a list of substances for national purposes that satisfy the requirements of this standard as recommended in Clause 6.2.

INS	Name	Specific conditions
	Calcium carbonates	
	Calcium chloride	Firming, coagulation agent in cheese making.
	Kaolin	Extraction of propolis.
	Lactic acid	Milk products: coagulation agent, pH regulation of salt bath for cheese.
	Sodium carbonate	Milk products: neutralizing substance.
	Water	

Table D.4 — Non-organic ingredients (Those not classified as food additives)

Common Name(s)	Origin and usage
Colouring, natural	From non-synthetic sources only and shall not be produced using synthetic solvents and carrier systems or any artificial preservative.
Cornstarch	Not from sources from genetic engineering or products derived from genetic engineering, with no added chemosynthetic substance.
Dairy cultures	May not be products of recombinant DNA technology.
Enzymes	Any preparations of enzymes normally used in food processing derived from edible, non-toxic plants, non-pathogenic fungi, or non-pathogenic bacteria, excepting micro-organisms from genetic engineering or enzymes derived from genetic engineering.
Flavours	From non-synthetic sources only; shall not be produced using synthetic solvents and carrier systems or any artificial preservative. No propylene glycol carrier or any artificial preservatives, and shall not be hexane extracted.
Micro-organisms, (processing derivatives)	Including any preparations of micro-organisms normally used in product processing, excepting micro-organisms from genetic engineering or enzymes derived from genetic engineering, with no added chemosynthetic substance.
Oxygen	For controlled atmosphere storage.
Potassium iodide, natural	
Smoke flavour.	See Yeast.
Vitamins and minerals	Minerals (including trace elements), vitamins and similar isolated ingredients shall not be used except where legally required or a dietary or nutritional deficiency can be demonstrated and shall be documented. Vitamins shall not be derived from organisms from genetic engineering.
Waxes	Non-synthetic only: a) carnauba wax and b) wood resin (processing product of resin component).
Yeast	Non-synthetic only: a) autolysate, b) bakers' (may contain lecithin, obtained without the use of bleaches and organic solvents), c) brewers', d) nutritional, and e) smoked. Non-synthetic smoke flavouring process shall be documented. Growth on petrochemical substrate and sulphite waste liquor are prohibited.

Table D.5 — With organic ingredients

(Substances only permitted when the product contains less than 95% organic ingredients)

Common Name(s)	Origin and usage
Magnesium carbonate	For use only in agricultural products labelled "Contains X% organic ingredients"; prohibited in agricultural products labelled "organic" and as an anti-caking agent in non-standardized dry mixes (e.g. seasonings) used in meat products.
Magnesium stearate	For use only in agricultural products labelled "Contains X% organic ingredients"; prohibited in agricultural products labelled "organic."

Potassium iodide, synthetic	For use in agricultural products labelled "Contains X% organic ingredients" only; prohibited in agricultural products labelled "organic."
Potassium metabisulphite	For use for alcoholic beverages as a preservative only, and labelled "Contains X% organic ingredients."
Potassium phosphate	For use in agricultural products labelled "Contains X% organic ingredients" only; prohibited in agricultural products labelled "organic."
Sulphurous acid	For use only in wine products labelled "Contains X% organic ingredients," provided that total sulphite concentration does not exceed 100 ppm. For use in winemaking as a preservative only; minimum use of sulphur dioxide (SO ₂) is recommended. The maximum allowable level of SO ₂ is 100 parts per million and 30 parts per million for total sulphites and free sulphites, respectively.

Table D.6 — Cleaners, Disinfectants and Sanitizers

Common Name(s)	Origin and usage
Acetic acid, synthetic	May be used postproduction as a cleaning agent to remove mineral residues in evaporators used in maple syrup production.
Alkali carbonates and bicarbonates	For disinfecting greenhouse facilities.
Bleach	Residual chlorine levels in the water of the following substances shall not exceed the maximum residual disinfectant limit under federal and provincial regulations: a) calcium hypochlorite, b) chlorine dioxide, c) sodium hypochlorite, d) ozone, and e) hydrogen peroxide. Not to exceed 10% solution by volume.
Caustic potash (potassium hydroxide)	For disinfecting growing facilities and structures.
Chlorine	See Bleach.
Detergents	Includes soaps — biodegradable only (whose biodegraded components are not more harmful than the original components). Allowed for use as equipment cleaners, including equipment used in the production and processing of food.
Hydrogen peroxide	Shall be a hydrogen-peroxide-based solution for food use (hydrogen water).
Lime	
Lye	For disinfecting greenhouses only. Prohibited for use in crop production, such as for adjusting the pH.
Peracetic acid	For use in disinfecting equipment, seed and asexually propagated planting material.
Phosphoric acid	As a dairy equipment cleaner, only in accordance with the manufacturer's written instructions, provided no direct contact with organically managed livestock or land occurs.
Potassium permanganate	Not to exceed 1% solution by volume.
Soaps	See Detergents.
Sodium bicarbonate (baking soda)	Permitted for use as a cleaning agent for equipment used in the production and processing of food.
Sodium borate	
Vinegar	Cider and maple vinegars are permitted as a cleaning agent for equipment used in production and processing. Vinegar used as an ingredient shall be from an organic source. Acetic acid used for sanitations can be from a non-organic source but shall be food-grade quality.

Annex E
(normative)

Minimum inspection requirements and precautionary measures under the inspection or certification system

E.1 Inspection measures are necessary across the whole of the food chain to verify product labelled according to Clause 14 of this standard conforms to internationally agreed practices. The official or officially recognized certification body or authority and the competent authority should establish policies and procedures in accordance with this standard.

E.2 Access by the inspection body to all written and/or documentary records and to the establishment under the inspection scheme is essential. The operator under an inspection should also give access to the competent or designated authority and provide any necessary information for third party audit purposes.

Production units

E.3 Production according to these guidelines should take place in a unit where the land parcels, production areas, farm buildings and storage facilities for crop and livestock are clearly separate from those of any other unit which does not produce according to this standard; preparation and/or packaging workshops may form part of the unit, where its activity is limited to preparation and packaging of its own agricultural produce.

E.4 When the inspection arrangements are first implemented, the operator and the official or officially recognized certification body or authority should draw up and sign a document which includes:

- a) a full description of the unit and/or collection areas, showing the storage and production premises and land parcels and, where applicable, premises where certain preparation and/or packaging operations take place;
- b) and, in the case of collection of wild plants, the guarantees given by third parties, if appropriate, which the producer can provide to ensure that the provisions of Clause 12 are satisfied;
- c) all the practical measures to be taken at the level of the unit to ensure compliance with these guidelines;
- d) the date of the last application on the land parcels and/or collection areas concerned of products the use of which is not compatible with Clause 5 of these guidelines;
- e) an undertaking by the operator to carry out operations in accordance with Clauses 5 and 14 and to accept, in event of infringements, implementation of the measures as referred to in 7.9 of this standard.

E.5 Each year, before the date indicated by the certification body or authority, the operator should notify the official or officially recognized certification body or authority of its schedule of production of crop products and livestock, giving a breakdown by land parcel/herd, flock or hive.

E.6 Written and/or documentary accounts should be kept which enable the official or officially recognized certification body or authority to trace the origin, nature and quantities of all raw materials bought, and the use of such materials; in addition, written and/or documentary accounts should be kept of the nature, quantities and consignees of all agricultural products sold. Quantities sold directly to the final consumer should preferably be accounted for on a daily basis. When the unit itself processes agricultural products, its accounts must contain the information required in E.17 c).

E.7 All livestock should be identified individually or, in the case of small mammals or poultry, by herd or flock or in the case of bees by hive. Written and/or documentary accounts should be kept to

enable tracking of livestock and bee colonies within the system at all times and to provide adequate traceback for audit purpose. The operator should maintain detailed and up-to-date records of:

- a) breeding and/or origins of livestock;
- b) registration of any purchases;
- c) the health plan to be used in the prevention and management of disease, injury and reproductive problems;
- d) all treatments and medicines administered for any purpose, including quarantine periods and identification of treated animals or hives;
- e) feed provided and the source of the feedstuffs;
- f) stock movements within the unit and hive movements within designated forage areas as identified on maps;
- g) transportation, slaughter and/or sales.
- h) extraction, processing and storing of all bee products.

E.8 Storage, on the unit, of input substances, other than those whose use is with 5.1(b) of this standard is prohibited.

E.9 The official or officially recognized certification body or authority should ensure that a full physical inspection is undertaken, at least once a year, of the unit. Samples for testing of products not listed in these guidelines may be taken where their use is suspected. An inspection report should be drawn up after each visit. Additional occasional unannounced visits should also be undertaken according to need or at random.

E.10 The operator should give the certification body or authority, for inspection purposes, access to the storage and production premises and to the parcels of land, as well as to the accounts and relevant supporting documents. The operator should also provide the inspection body with any information deemed necessary for the purposes of the inspection.

E.11 Products referred to in Clause 1 of this standard which are not in their packaging for the end consumer should be transported in a manner which should prevent contamination or substitution of the content with substances or product not compatible with these guidelines and the following information, without prejudice to any other indications required by law:

- a) the name and address of the person responsible for the production or preparation of the product;
- b) the name of the product; and
- c) that the product is of organic status.

E.12 Where an operator runs several production units in the same area (parallel cropping), units in the area producing crop, crop products not covered by Clause 1 should also be subject to the inspection arrangements as regards the dash points of E.4 and E.6 and E.8. Plants of indistinguishable varieties as those produced at the unit referred to in E.3 should not be produced at these units:

- a) If derogations are allowed by the competent authority, the authority must specify the types of production and circumstances for which derogations are granted and the supplementary inspection requirements, such as unannounced site visits; extra inspections during harvest; additional documentary requirements; assessment of an operation's ability to prevent co-mingling, etc., which are to be implemented.

- b) Pending further review of these guidelines, member countries can accept parallel cropping of the same variety, even if it is not distinguishable, subject to adequate inspection measures being applied.

E.13 In organic livestock production, all livestock on one and the same production unit must be reared in accordance with the rules laid down in this standard. However, livestock not reared in accordance with this standard may be present on the organic holding provided that they are separated clearly from livestock produced in accordance with this standard. The competent authority can prescribe more restrictive measures, such as different species.

E.14 The competent authority may accept that animals reared in accordance with the provisions of this standard may be grazed on common land, provided that:

- a) this land has not been treated with products other than those allowed in accordance with Clause 5.1 (a) and (b) of this standard, for at least three years;
- b) a clear segregation between the animals reared in accordance with the provisions of this standard, and the other animals can be organized.

E.15 For livestock production, the competent authority should ensure, without prejudice to the other provisions in this Annex, that the inspections related to all stages of production and preparation up to the sale to the consumer ensure, as far as technically possible, the traceability of livestock and livestock products from the livestock production unit through processing and any other preparation until final packaging and/or labelling.

Preparation and packaging units

E.16 The producer and/or operator and should provide:

- a) a full description of the unit, showing the facilities used for the preparation, packaging and storage of agricultural products before and after the operations concerning them;
- b) all the practical measures to be taken at the level of the unit to ensure compliance these guidelines.

This description and the measures concerned should be signed by the responsible person of the unit and the certification body.

The report should include an undertaking by the operator to perform the operations in such a way as to comply with Clause 5 of this standard and to accept, in the event of infringements, the implementation of measures as referred to in 7.9 of this standard and be countersigned by both parties.

E.17 Written accounts should be kept enabling the certification body or authority to trace:

- a) the origin, nature and quantities of agricultural products as referred to in Clause 1 of this standard which have been delivered to the unit;
- b) the nature, quantities and consignees of products as referred to in Section 1 of these guidelines which have left the unit;
- c) any other information such as the origin, nature and quantities of ingredients, additives and manufacturing aids delivered to the unit and the composition of processed products, that is required by the certification body or authority for the purposes of proper inspection of the operations.

E.18 Where products not referred to in Clause 1 of this standard are also processed, packaged or stored in the unit concerned:

- a) the unit should have separate areas within the premises for the storage of products as referred to in Clause 1 of this standard, before and after the operations;
- b) operations should be carried out continuously until the complete run has been dealt with, separated by place or time from similar operations performed on products not covered by Clause 1 of this standard;
- c) if such operations are not carried out frequently, they should be announced in advance, with a deadline agreed on with the certification body or authority;
- d) every measure should be taken to ensure identification of lots and to avoid mixtures with products not obtained in accordance with the requirements of these guidelines.

E.19 The official or officially recognized certification body or authority should ensure that a full physical inspection, at least once a year, of the unit. Samples for testing of products not listed in these guidelines may be taken where their use is suspected. An inspection report must be drawn up after each visit countersigned by the person responsible for the unit inspected. Additional occasional unannounced visits should also be undertaken according to need or at random.

E.20 The operator should give the official or officially recognized certification body or authority or authority, for inspection purposes, access to the unit and to written accounts and relevant supporting documents. The operator should also provide the inspection body with any information necessary for the purposes of inspection.

E.21 The requirements in respect to the transport as laid down in E.10 are applicable.

E.22 On receipt of a product referred to in Clause 1 of this standard, the operator shall check:

- a) the closing of the packaging or contained where it is required;
- b) the presence of the indications referred to in E.10. The result of this verification shall be explicitly mentioned in the accounts referred to in point E.17. When there is any doubt that the product cannot be verified according to the production system provided for in Clause 7 of this standard, it must be placed on the market without indication referring to the organic production method.

Imports

E.23 Importing countries should establish appropriate inspection requirements for the inspection of importers and of imported organic products.

Bibliography

EAS 456:2007, *Organic products standard*

CODEX GL 32:1999(Am. 2010), *Guidelines for the production, processing, labeling and marketing of organically produced foods*

National Standard of Canada, CAN/CGSB-32.310-2006, *Organic Production Systems — General Principles and Management Standards*. Amended October 2008, December 2009 and June 2011. Reprinted August 2011

National Standard of Canada, CAN/CGSB-32.311-2006, *Organic Production Systems — Permitted substances lists*.

National Program for Organic Production Standards, 6th Edition, 2005. Department of Commerce, Ministry of Commerce and Industry, India

Draft African Standard for comments only — Not to be cited as African Standard